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VAGINO-UTERINE PROLAPSE AND ITS EFFECTIVE TREATMENT *

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Vagino-uterine prolapse is a form of hernia through the vaginal outlet which may involve respectively the bladder and anterior vaginal wall, the anterior vaginal wall or the bladder and the cervix uteri; or the eversion may comprise cervix, or uterus, and the entire vaginal structure. The protrusion of the anterior pelvic segment is frequently a sliding of the bladder, pushing it before the anterior vaginal wall and dragging on the cervix where the uterus is firmly fixed as by firm ligaments and resistant peritoneum. The traction on the cervix causes a hypertrophic elongation of the supravaginal portion of the cervix. The anterior and posterior vaginal walls are attached to the cervix at different levels so that such an elongation may occur in the vesical portion of the cervix with complete eversion of the anterior vaginal wall and the cervix, while the posterior vaginal, remains intact and presents its normal length. Not infrequently, the hernia begins in the posterior wall as a protrusion of the rectum between the levatores ani by which the vagina is protruded or sacculated. Traction is made on the cervix which may lead to hypertrophic elongation, or to displacement of the entire uterus (Fig. 1). Not infrequently, also, the protruding rectum becomes adherent to the edges of the levatores ani and must be separated in order to permit the introduction of sutures for the interposition of the muscles. The prolonged continuance of this form of hernia leads to passive congestion, edema and thickening of the walls. The congested structures have decreased resistance and are exposed to more frequent injury through contact with the patient's clothing, friction against her limbs, soiling with urine and feces and other injuries. Patches of ulceration are frequent and when formed are slow to heal; the uterus is heavy, enlarged and sometimes irreducible; more frequently, however, the traction of the thickened tissues causes elongation of the supravaginal portion of the cervix while the body retains somewhat near its normal situation. In the great majority of cases, this condition occurs in women advanced in life, nearing or having passed the climacteric. In such patients the problem of subsequent gestation is not an essential factor but even in women during the child-bearing period, any operation for the successful retention of the protruding uterus and vagina is inconsistent with the continuance of procreation. No operative procedure has been devised for such a condition which will successfully endure the mechanism of a subsequent labor. Indeed, the changes produced in the uterus are such as to render conception improbable, and to make the uterus unable to develop in such a way as to offer a reasonable probability that the fecundated ovum shall find a proper soil and secure habitation to ensure completion of the pregnancy. When it is probable procreation will not be successful, there should be no hesitation as to the removal of the uterus. It is difficult to restore a uterus which has undergone elongation of its cervical portion to the proper relation with the other pelvic

Fig. 1.—Vagino-uterine prolapse.

structures. It is a more or less crippled organ, capable of adding to the unhappiness of the situation.

It is well appreciated that the discomfort and danger to the patient is lessened when the operative procedure can be confined to the vaginal route. The uterus in such cases is a needless organ—yea, worse than needless, a diseased organ—which affords lessened discomfort especially through its removal by the vaginal procedure; the more rapid convalescence and the greater security for permanent recovery are ample reasons for resort to this procedure.

The operation is commenced by the removal of a large section of the anterior vaginal wall; the bladder is widely

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

pushed back from the retained portions, and separated from the cervix until the peritoneum is reached and opened. The posterior peritoneum is opened and the uterine and ovarian vessels ligated on either side, the broad ligament stumps held with clamp forceps and the uterus removed. In such cases, the retroperitoneal pouch has dissected downward covering an unusual portion of the anterior rectal surface and dragging down the rectum.

The peritoneum should be stripped off from the prolapsed rectum, when the hemostasis is complete, the recumbent patient should have the pelvis slightly elevated until the intestines slide out of the wound. A suture enters the anterior border of the left broad ligament, gathers up the peritoneum of the bladder, is brought out through the anterior margin of the right broad ligament, when its ends are secured by clamp forceps. A second suture passes through the posterior margin of the ligament and gathers up the peritoneum of the pouch of Douglas which we separated (Fig. 2). A third suture passes beneath the peritoneum of the upper surface of the left ligament, is carried through the wall of the bladder midway between the peritoneal reflexion

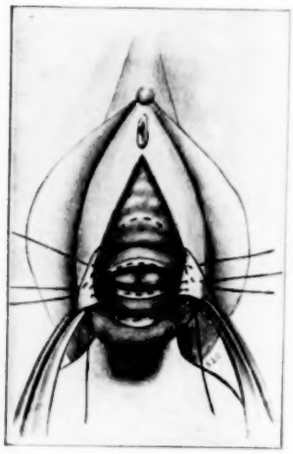

Fig. 2.—Sutures inserted for closing the peritoneum and lifting up the bladder and rectum.

Fig. 3.—Broad ligaments overlapping beneath bladder and rectum. Sutures inserted to close the vaginal walls.

and the vesical neck (lower if required), emerges from the right broad ligament in a similar manner to its entrance on the left. A fourth suture from the upper surface of the one ligament stump passes through the wall of the rectum from which the peritoneum has been stripped and out through the opposite ligament; each of these sutures has been secured by forceps, preferably by forceps of different sizes so that they can be easily differentiated. The tying of the first two sutures closes the peritoneal cavity. The remaining sutures when secured raise the prolapsing bladder and rectum. The stumps of the broad ligaments are made to overlap each other and the bladder and rectum are secured on their upper surfaces and beneath the peritoneum (Fig. 3). The anterior vaginal sections are secured to the broad ligament stumps and are closed over the bladder by transverse interrupted sutures. Each suture picks up the muscle wall of the bladder, thus obliterating dead space. A pledget of iodoform gauze is packed into the pelvis.

The operation is completed by dissecting a flap from the vulvovaginal margin upward on the posterior vaginal wall, largely by blunt dissection or pressing the tissue away from the vaginal flap with a gauze sponge until a suitable height has been reached, when a triangular portion of this mucous flap is excised. The sutures are so introduced into the edge of the levator ani muscle as to bring the structure from one side in apposition with its fellow in front of the rectum. When thus secured by three or four sutures, the margins of the vaginal walls are united by transverse interrupted sutures. Chromic catgut sutures are employed throughout and no effort is made to remove the sutures.

The operation has the following advantages:

1. The diseased, distorted uterus with its increased weight is removed.

2. Prolapse of both rectum and bladder is prevented inasmuch as they are supported on the upper surface of the broad ligaments.

3. The possibility of protrusion of the rectum, carrying with it the posterior vaginal wall, is obviated by the rectovaginal interposition of the levatores ani muscles.

4. The normal length of the vagina is maintained.

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PROLAPSE OF THE UTERUS*

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We were taught: "Keep the cervix of the uterus in the hollow of the sacrum and the rest of the organ will take care of itself."

This teaching is just as applicable now for prolapse of the uterus in the modern treatment of that condition as it was found for all kinds of displacements of the uterus, when these conditions were treated by pessaries and multitudes of "methods" of surgery.

The most modern and satisfactory operation for extreme descent of the uterus is undoubtedly the Dührssen–Watkins–Wertheim anterior transposition operation. This involves the placing of the fundus beneath the bladder and making a high restoration of the rectovaginal septum. This throws the uterus into extreme anteversion and places its fundus below the bladder—between it and the anterior vaginal wall. This, of necessity, turns the cervix backward and with a fulcrum of the highly restored levator ani muscles to act beneath it, it is still further shunted higher into the hollow of the sacrum with each attempt of the fundus to descend. This position of the uterus blocks the passage and the twisted broad ligaments shorten the central support and the hernia is cured by changing the presenting diameter of its contents.

This operation is ideal in women past the child-bearing period. In extreme cases, it is doubtful if one would not be justified in rendering the woman sterile by interrupting the tubes, in order to make the operation available for prolapse in child-bearing women. This I have done.

Recently, on several occasions, I have modified the steps of the Watkins operation to make it available to younger women.

In the first step of the old operation, after making the longitudinal incision through the anterior vaginal wall in order to elevate the bladder and to expose the fundus for delivery, there are always observed two strong fascial bands extending from the pubis beneath the lateral

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

walls of the vaginal mucous membrane, which extend to the cervix. They are the stretched-out remains of the pubocervical or the vesical uterine ligaments. The prolapsing bladder has descended between them. By a rapid dissection these fascial bands can be separated from the lateral walls of the vagina and their outer edges will be found to coalesce with the strong middle diaphragm or fascia of the pelvis.

In the operations I have done, after these fascial bands are dissected free, the bladder is carefully elevated to a level of the top of the fundus of the uterus. The cervical ends of these bands are severed, appropriately shortened on their cervical ends, and after being crossed in order to make a support for the bladder, the ends are securely transplanted into the fundus of the uterus just in front of the crest. The vaginal wall is closed, after its superabundance is removed, in a manner to maintain or increase its long diameter, and to eliminate the dead space caused by elevating the bladder.

Previous to this step, the fundus has been exposed, and when the case of prolapse has been a severe one, and the fundus is easily delivered, I examine by inspection, by means of a broad long-bladed retractor placed above the delivered uterus, the sacral folds of peritoneum containing the vestige of the sacro-uterine ligaments. These folds are often easily seen and felt, appearing as long flaccid folds of peritoneum. A pair of rounded, slightly curved, 8-inch artery clamps, guided by sight and touch, are thrust through the base of each broad ligament, on a level of the internal os and from a point in front of the cervix from within the longitudinal vaginal incision, into the culdesac of Douglas. The forceps are then opened in order to enlarge the tunnel through which they pass, and they are each made to grasp the sacro-uterine fold at a point about one-third distance from its uterine end, and this fold is drawn through the route of the forceps on either side of the cervix, while the cervix is pushed upward and backward on the doubled peritoneal fold until the forceps have withdrawn the apices of the two folds to the point of the cervix. The cervix is pushed well back on these folds after the grasp of the forceps is renewed. This not only carries it backward, but upward. The folds of the superabundance of ligament are then securely united in front of the cervix. The appendages of the uterus are inspected and the fundus fixed, as heretofore described.

With this form of operation, a successful result depends much on the form of the perineorrhaphy.

In prolapse cases it is often forgotten that the posterior vaginal wall mucous membrane becomes atrophied in its longitudinal direction. An attempt to restore the cervix to its high position in the hollow of the sacrum will reveal a distinct pull on the cervix on the part of this atrophied vaginal wall. This pull may prove disastrous to the stability of the replaced uterus.

In these same cases, too, the levator ani muscles are defective in effecting their normal support, either because of being torn, because of an undeveloped condition, or because of being displaced laterally by the forces of childbirth. In each of these cases, the anus is unsupported and sags below the normal level, and the lower rectum pushes forward the vaginal mucous membrane in a rectocele.

The perineorrhaphy that I attempt to do in these cases effectually corrects these conditions; that is, it lengthens the posterior vaginal wall and takes the pull off the cervix; it brings together the defective levator ani muscles between the reconstructed vaginal wall and the rectum; it elevates the anus and obliterates the rectocele by elevating the end of the lower bowel; it places the reconstructed levator ani muscles directly beneath the elevated cervix, and thus gives it no opportunity to begin a descent.

I received the idea of this operation in witnessing a somewhat similar procedure at the Mayo Clinic. In its essentials, it is a flap-splitting operation. In detail, with its modifications as I perform it, it is as follows:

The ordinary horseshoe incision is made, extending to the side of the vulva and across the septum between the vagina and anus. The portion of the mucous membrane at the center of the septum is separated from the rectum for about one inch; the remainder of it is allowed to retain its attachment. Then a high dissection is made on either side of the vagina and the vaginal rectal space until the levator ani muscles are definitely exposed. The vaginal mucous membrane flap is now grasped at its middle point with a long pair of forceps, and the free straight border of the vaginal flap is converted into an acute triangle with the central portion grasped by the forceps as the apex and the two sides of the triangle extended longitudinally into the vagina by carrying the portion grasped by the forceps in a direction away from the perineum toward the cervix and the vault of the vagina. This maneuver elevates the lower end of the rectum by the pull on the centrally attached mucous membrane of the vagina and allows the levator ani muscles to be brought together in the central line beneath the elevated rectocele and the extended posterior wall of the vagina. The two sides of the angle of the mucous membrane of the vagina are now united in the middle line, making a seam extending from the new vaginal edge to the elevated tip of the vaginal mucous membrane which constituted the apex of the triangle. The skin over the perineum is next closed by extending the simple catgut suture which closed the longitudinal line in the posterior vaginal wall.

When this operation is done for prolapse, I avoid, whenever it is possible, amputation of the cervix, as I desire to have that projecting portion of the uterus riding well back of the reconstructed perineum to aid in preventing the uterus paralleling the vagina.

THE ANATOMY AND SURGICAL UTILITY OF SACRO-UTERINE LIGAMENTS*

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The sacro-uterine ligaments, from an operative standpoint, attract very little attention. While they have been the object of occasional study, neither their limitations nor their extensions have been fixed so as to give them a definite place in surgery. The general impression seems to be that they are difficult of access and both structurally and mechanically of doubtful surgical utility.

HISTORY

From 1902 to 1906, Bovée[1] published a series of articles calling attention to the sacro-uterine ligaments.

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Bovée: Am. Gynec., July, 1902.

His bibliography shows that as far back as 1850 efforts were made to utilize the ligament in the treatment of retroversion of the uterus. In 1902 he gave an interesting historical account and described the various methods proposed for shortening the ligaments. The technic of these operations, whether the mode of approach was through the vagina or through the abdomen, consisted of folding or doubling the ligaments without actually isolating them. Bovée, however, exposed them by making an anteroposterior incision in the vault of the vagina and dissecting them out. He doubled each on itself and sewed the loop thus formed to the cervix below the normal point of insertion of the ligaments. The incision in the vagina originaly made longitudinally was then sewed transversely, which procedure assists in raising the cervix.

In appropriate cases, this is an easy and effective operation. While Bovée's articles attracted considerable attention at the time they were published, the profession has shown no sustained interest in the ligaments as surgical possibilities. The reason is probably because their mechanical importance is not generally understood. Furthermore, none of the operations proposed has appealed to surgeons as clear and mechanically sound methods of utilizing them.

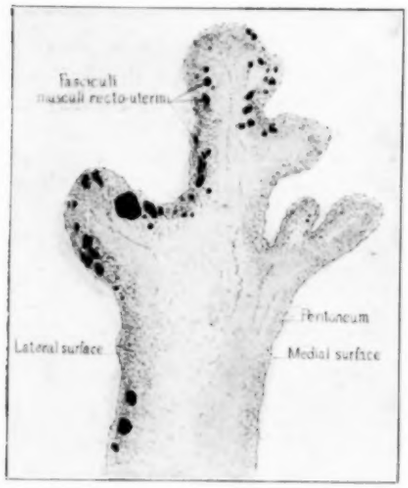

Fig. 1.—Transverse section of rectovaginal fold of Belgian hare.

Fig. 2.—Transverse section through right recto-uterine fold in anterior part of middle third of child of 10 years.

In August, 1911, Jellette[2] of Dublin described a new operation for shortening the sacro-uterine ligaments. This article, to my mind, establishes their surgical value, for it demonstrates an easy and practical method of exposing, isolating and utilizing them as mechanical supports. With this advanced step in perfecting the technic of operating, I believe that shortening them should be accepted as one of the standard methods of treating retroversion and prolapse.

In order to judge whether or not utilization of these ligaments for this purpose is practicable, it is natural to turn to a consideration of their structure, relations and functions.

At my suggestion and for the purposes of this paper, Professor Blaisdell of the Division of Anatomy of Stanford University has made a special study of these structures. Although originally only a brief survey was planned, so many interesting problems were uncovered that his work has grown to monographic proportions and will be published later. The chief practical points of these observations will be given below.

2. Jellette: Surg., Gynec. and Obstet., xiii, No. 2.

A comparison of authorities leaves one in doubt as to what really constitutes the sacro-uterine ligaments. There are three structures involved—muscle, fibro-elastic tissue and peritoneal folds. So intimately related are they that authorities differ as to which should be included and which excluded from the true ligaments. The present study was taken up chiefly to arrive at a clearer understanding of the relations and functions of these tissues.

COMPARATIVE ANATOMY

Considerable light is thrown on the ligaments by observing their analogues and homologues in the lower animals. Here they appear in their simplest forms and one is able to follow the changes from the simple to the more complex. This fact led to the study of a comparative series of animals consisting of guinea-pig, Belgian hare (Fig. 1), cat, dog, and monkey. In this series the parametrial tissue, ligaments and folds were cut in serial sections and subjected to careful histologic analysis.

While each specimen in the series presented interesting differences, the general structure of the tissues under observation was practically the same in all. The condition found in the cat affords a fair example of the series examined.

In animals which habitually assume the horizontal position the uterus is either double or bicornate. It is long and slender and its weight is distributed along an extensive peritoneal attachment, often as far forward as the kidney. This arrangement requires only slight support from the peritoneal folds. There is no need of true or fibrous ligaments. The folds of peritoneum acting as ligaments are very thin and transparent and any fibrous or muscle tissues that may be found in them are only rudimentary structures.

If the bicornate uterus of the cat be pulled ventrad so as to expose the pouch of Douglas, two well-marked folds of peritoneum are seen, in the situation corresponding to the sacro-uterine ligaments. They run on either side of the pouch of Douglas ventrad dorsad, but it will be noticed that the folds are not sacro-uterine, but recto-vaginal, inasmuch as they run only from rectum to vagina instead of from sacrum to uterus. In none of the lower animals does this ligament show any disposition to connect sacrum and uterus.

MICROSCOPIC STRUCTURE

A transverse section of one of these folds shows under the microscope an interesting condition. In all the animals examined the peritoneum forming the fold was much thicker than the surrounding peritoneum. This hypertrophy was confined chiefly to the fibrous layer or stratum fibrosum. Within this fibrous layer, and therefore distinctly within the peritoneal structure, were found a number of small fasciculi of unstriped muscle fibers. They originate from the uterus, pass first to the fold attached to the vagina and remaining within the fibrous layer of the peritoneum pass backward toward the rectum.

The observation of muscle fibers within the structure of the peritoneum itself is thought by Blaisdell to be new. The muscle fibers found in the ligament are

usually described as lying between the layers of the peritoneal fold and are called the recto-uterine muscle, but, as will be shown later, these fibers constitute a separate structure with a well-marked levator function. It is accordingly suggested that they be called the levator uteri muscle to distinguish them from the true recto-uterine muscle.

The muscle fibers situated within the structure of the peritoneum constitute the true recto-uterine muscles. They are found not only in animals but also in the human female. The thickened musculofibrous structure forming the rectovaginal folds in the lower animals are primitive and the sacro-uterine folds in women are the same in histologic structure and function.

In the lower animals, the space between the peritoneal layers of a fold contains principally areolar tissue. The muscle fasciculi and fibro-elastic tissue so abundant in the human female are absent or only rudimentary.

Monkey.—Emphasis is laid on the thin, transparent nature of the peritoneal folds in the lower animals and the small amount of weight supported by them. With the assumption of the upright position, the uterus and its appendages sink down into the pelvic cavity and contract into a solid mass. With increased concentrated weight, there is demand for firmer support and we find, coincidently, the development of abundant fibro-elastic and muscle tissue within the folds. In the monkey, for instance, the uterus is undivided and the anatomic conditions are similar to those in women. Here, with the sinking down of the uterus, we find the rectovaginal fold changes to a sacro-uterine and in other respects the structures are human in character, but to a less marked degree.

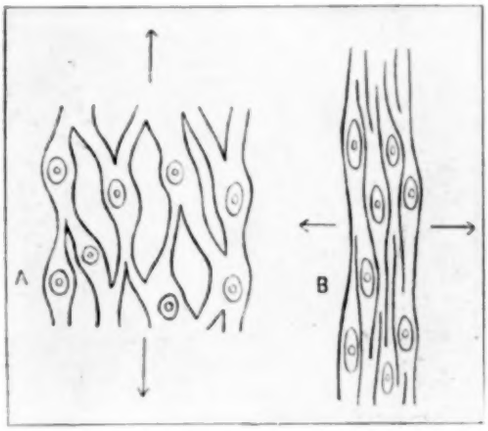

Fig. 3.—Fibro elastic meshwork which forms (a) potential, (b) temporary sacro-uterine ligament.

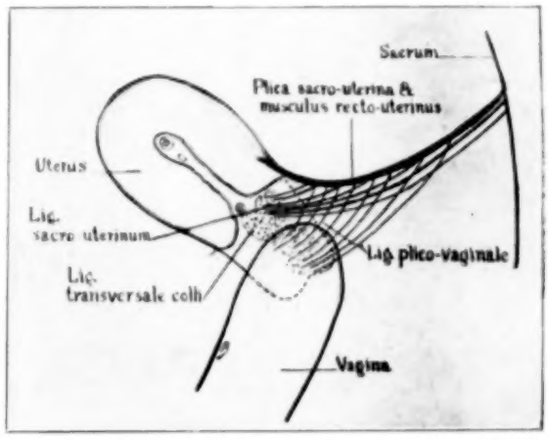

Fig. 4.—Diagram showing origin and attachments of sacro-uterine ligament.

Woman.—In examining the sacro-uterine ligament in the human female we find that it is much thicker, stronger and more prominent than its homologue in the lower animals. A cross-section shows it to be composed of three main structures: (1) a thickened peritoneum, (2) a fibro-elastic meshwork, and (3) muscle fasciculi. These component parts will be considered separately.

PERITONEAL FOLDS

In the lower animals, the peritoneal structure alone is prominent. The muscle fasciculi and fibro-elastic tissues are only rudimentary. In woman the folds which cover the sacro-uterine ligaments vary considerably in prominence. Sometimes they are only potentially present and appear only when traction forward is made on the uterus. At other times, they may be traced by the eye throughout their course.

Posteriorly, the folds vary in their attachment, sometimes being connected with the rectum and sometimes with the sacrum. Whether the fold becomes recto-uterine or sacro-uterine depends on variation in the position, size and attachment of the rectum. If the rectum is large both folds may be recto-uterine. If the rectum is small, and especially if it has a mesentery, the folds will be sacro-uterine. If the rectum is located to one side, the adjacent fold may be recto-uterine and the opposite sacro-uterine.

Another marked feature of the peritoneum is that traction forward on each sacro-uterine fold usually raises the surface into a series of ridges. The meaning of this is that the peritoneum has a direct attachment to the fibers beneath. This attachment was demonstrated by microscopic examination and the fibers of the underlying meshwork traced to the fibrous stratum of the peritoneum. This connection adds considerably to the strength of the true sacro-uterine ligament.

FIBRO-ELASTIC MESHWORK

Beneath the plicae sacro-uterinae, and filling all that space about the uterus called the parametrium, there is found a dense fibro-elastic meshwork. This tissue consists of interlacing fibers ensheathing the vessels and nerves. Careful dissection shows that it is attached to the fascia of the levator ani below, the obturator fascia laterally and the peritoneum above. The general course of these fibers is from the cervix toward the presacral fascia, spreading out to the various points of attachment. It will be remembered that this tissue, while abundant in the human female, is practically absent in the lower animals. Its appearance is coincident with the assumption of the upright position and its function is both to protect and to support. In fact, it may be called the fibro-elastic suspensorium of the uterus.

In a state of rest, the fibro-elastic tissue remains a diffuse network. When traction is made in any direction, condensation occurs along the line of traction and the fibers are thrown into a bundle forming an elastic cord. Remove the traction and by virtue of inherent elasticity or resiliency the tissue resumes its meshwork character. The sacro-uterine ligament is formed from the meshwork by traction in this manner.

MUSCLE FIBERS

The fibro-elastic meshwork about the uterus is interlaced with numerous fasciculi of smooth muscles. These are more abundant close to the uterus than in the more distinct parts, inasmuch as they originate from the uterus. They are the cause of the dense or cord-like character of the sacro-uterine ligaments and also of the

so-called cardinal ligaments which pass off from the sides of the uterus at the base of the broad ligaments.

These fibers by contraction and by pulling on their attachments to the fibro-elastic meshwork have the power of raising the uterus. They evidently act in response to reflex stimuli. Inasmuch as these muscle fasciculi form a separate structure with a distinct function it is suggested by Blaisdell that it be called the levator uteri muscle.

PLICOVAGINAL LIGAMENT

In studying the course of the fibro-elastic meshwork within the peritoneal folds, it was demonstrated that a

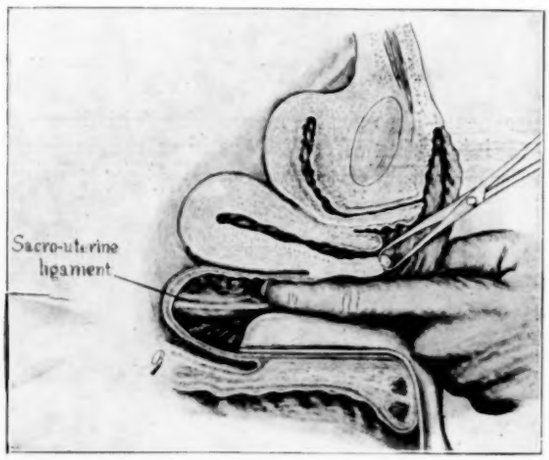

Fig. 5.—Palpation of ligament.

distinct mass of fibers ran from the anterior two-thirds of the sacro-uterine fold (plica sacro-uterina) down to the vault of the vagina. The function of these fibers is clearly to sustain the vault-like character of the lateral and posterior fornices.

As they are ligamentary in function and have distinct points of origin and insertion it is suggested that the structure be called the plicovaginal ligament.

SACRO-UTERINE LIGAMENT

The true sacro-uterine ligament is quite distinct from the peritoneal folds and from the muscle fibers found between the folds. It is formed from the diffuse fibro-elastic meshwork. It differs much from our ordinary conception of a ligament inasmuch as it is not a permanent cord, but only potentially so. In function the ligament is inseparably connected with the peritoneal folds and the muscle fasciculi. Acting together the three structures have both a supporting and an elevator function.

The thickened musculo-fibrous character of the peritoneal folds renders them chiefly supporting.

The fibro-elastic meshwork through its inherent elasticity and resiliency restores the uterus and vaginal vault to their normal position when pushed or pressed down.

The bundles of muscle fibers forming what has been called the levator uteri, by their contractility, raise the uterus in response to reflex stimuli.

It is hardly necessary to compare the supporting value of the sacro-uterine ligaments with that of other uterine ligaments. Their importance is indicated by their structure and conceded by most authorities. Bovée insisted on their value in this direction and Goffe[3] has made the statement that the sacro-uterine ligaments are the most rational structures we can use for restoring the uterus to its normal position. The truth of this remark is readily revealed when we attempt to answer the question, What will support the vaginal vault if the sacro-uterine ligaments fail?

SURGICAL UTILITY

Granting the supporting value of these ligaments, it becomes surgically important to determine whether they may be utilized practically, as, for instance, in restoring the prolapsed uterus and vagina. The surgical utility of these structures depends on (1) their accessibility, (2) on whether their ligamentary character is definite enough to allow of shortening and (3) whether shortening is mechanically effective.

Accessibility.—In relaxed vaginal outlet and in severe cases of prolapse the ligaments are easily reached. If the cervix be drawn down with a volsellum, the cord-like ligaments, may be easily felt with the examining finger. They may be outlined and their size relations and point of insertion into the cervix determined. The simplest method of exposing them after they have been located is to make a circular incision about the cervix as proposed by Jellette and dissect back the cuff of mucosa until the insertions may be plainly seen. They

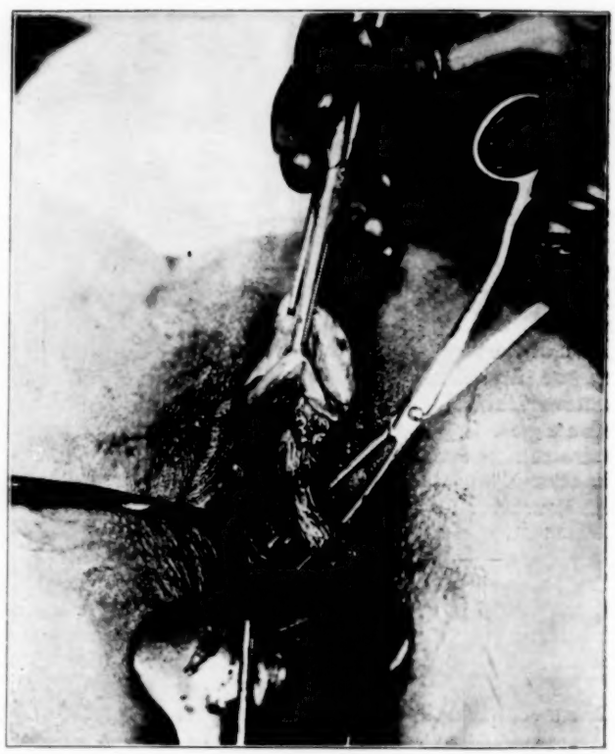

Fig. 6.—Sacro-uterine ligament exposed and isolated.

may then be isolated by blunt dissection, and even cut away from the uterus if deemed necessary. In cases of prolapse, I have been in the habit of exposing them by removing a small triangular flap posterior to the cervix. This procedure not only gives access to the ligaments but at the same time allows for transposition of the cervix to a higher position.

Ligamentary Character.—After exposure they may be isolated by pushing a clamp beneath them. By further dissection they may be completely separated from the uterus. They appear to the eye like loose bundles of

3. Goffe: THE JOURNAL A. M. A., July 5, 1902, p. 16.

muscle fibers forming a cord of considerable size and length, which may be manipuated as a ligament.

MECHANICAL UTILITY

After exposing the ligaments a few tests will show that they may be doubled on themselves as proposed by Bovée; sewed to each other as proposed by Byford or separated from their attachments and sewed to a new position as proposed by Jellette. Shortening is attained by any of these methods and the practical result of lifting the cervix follows as a matter of course.

The strength of the ligament is sufficiently attested by its size and resistance to tension. When it is remembered that the fibro-elastic meshwork from which the ligament is derived has a very broad attachment to surrounding fascia, and especially an insertion into the musculofibrous layer of the peritoneal fold, its ability to hold up the cervix becomes self-evident.

CONCLUSION

In conclusion, the object of the above study has been to arrive at a clearer understanding of the anatomy and surgical value of the sacro-uterine ligaments. I have had the opportunity of operating on these ligaments ten or twelve times, and as a result of both study and experience feel (1) that they are worthy of more general attention; (2) that the operation of shortening them is both practicable and successful, and (3) that it is particularly indicated when retroversion or prolapse is accompanied by relaxed vaginal vault.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MARTIN, MONTGOMERY AND SOMERS

DR. A. E. BENJAMIN, Minneapolis: This subject is a very important one. Operators have different points of view. One man has corrected this prolapse by the vaginal route, another by the abdominal. It is for the purpose of crystallizing our ideas and coming to some definite understanding regarding the proper position of the uterus and the underlying factors that we discuss the matter fully. I think most of us should study anatomy more thoroughly and especially the anatomy of the female pelvis, if we are to understand why we have prolapse and do this work properly. What is the mechanism and what are the factors necessary for the proper position of the uterus, and why do we have prolapse or misplacement of this organ? When we arrive at a thorough understanding of this subject our opinions will differ but little. I agree with what Dr. Martin has said in regard to prolapse in women past the menopause. The Watkins-Wertheim operation is satisfactory and I have had more women return to me expressing their gratitude for the results of this operation than for those of any other perhaps. It seems to be founded on the right principle, taking into consideration the anatomic structures and elevating the rectum which is prolapsed and in which we have a rectocele. It elevates the prolapsed bladder and does not interfere with its function. There is not the pain and discomfort so often encountered if the bladder is not properly replaced. Dr. Martin's idea of fastening the fundus a little higher up on the bladder and the use of the utero-vesical ligaments is one we should all recognize, so that our patients who have not passed the menopause may have the benefit of this method. It has been most difficult to get a uterus to stay in place after prolapse in women past the menopause and especially when the tissues have atrophied. One feature which we must consider is the intra-abdominal pressure. Very few of these uteri will prolapse if there is not a force above pushing them down.

DR. WILLIAM M. POLK, New York: The difficulty in dealing with the questions that have been presented grows out of the fact that we have so many admirable operations devised for this troublesome condition. Is this a hernia? If so, how does it compare with other hernias, and which is the best way of meeting the difficulty? There are certain general principles that we all recognize as accepted in all cases of hernia. First among these is the principle that the peritoneal support shall be of the first order. Unless we take care of the sac, no matter how skilfully the operation is performed, it is worthless. The weak point in the pelvis is the region of the bladder; the strong part, the region of the sacrum. If we can overcome the tendency to weakness in the bladder region, we can solve the question of prolapse. In spite of the variety of methods, however, there is ample room for all, because the varieties of procidence are almost infinite. Not only are each and all subject to different methods of procedure, but the condition of the patient also must always exercise a potent influence on the measure it is proposed to adopt. A woman of 60 whose tissues have undergone fatty degeneration is not in condition to make good an operation applicable to a woman of 30. There are conditions of congenital defects in these muscles which make certain procedures difficult in certain women. In certain women no changes have taken place in the levator ani muscles that make it a difficult matter to build the support from below. In others, especially the obese, the structures to which surgical skill is applicable are from the outset defective. There is no doubt, therefore, that in these various conditions presented to us we shall find the appropriate operation among those suggested. The beginnings of prolapse are always easy to correct. Operators should bear in mind that not only is it essential to have support from below, but that it is also of the highest importance that there is resistance from above. It must be understood also that the region of defect is to the front of the uterus rather than behind it. While every effort should be made to strengthen the support of the uterus, notably the use of the sacro-uterine ligaments, without adequate attention to the anterior supports of the uterus all measures will be in vain. Therefore, the anatomic and pathologic problem to be faced is this, that when prolapse begins, it begins from below posteriorly by lessening of the support there, but that in a short time the prolapse is increased by the insufficiency of the support above. Every measure should be resorted to that will shorten and make shallow the peritoneal surface that lies between the uterus on the one hand and the symphysis pubis on the other. There are a number of these procedures.

DR. WALTER B. DORSETT, St. Louis: We must consider the subject from the point of view of physiology as well as from that of pathology. We have to judge as to what constitute the natural and normal supports of the uterus. In my opinion each has its special function to perform. Aside from the different ligaments that support the uterus, we must not lose sight of one of the most important factors in the natural position of the uterus, and that is the intra-abdominal pressure. The intra-abdominal pressure on the uterus is on the posterior wall when it is in its normal position and on its anterior wall when it is retroverted. The deviation from the normal allows the uterus to sag down and feed itself, as it were, into the vagina. The uterine sacral ligaments are, so far as I have been able to observe by section and by digital examination, unimportant factors in the support of the uterus, and we must study them from a physiologic and from a pathologic standpoint. Dr. James N. West discussed this question in 1904. He proved experimentally that the utero-sacral ligament does not enter forcibly into the consideration of the support of the uterus.

I wish to call attention to the different actions of tissues composing ligaments and those composed chiefly of muscle in the cadaver when subjected to strain. In cases of retroflexion with congestion of the body of the uterus, the utero-sacral ligaments hold the uterus in a retroflexed condition, and I dare say that all of us, in examining these cases, when we have passed the two fingers into the posterior vaginal fornix and made pressure, have felt it slide up beyond these ligaments and out of our reach. I believe that in these cases of retroflexion, the uterosacral ligament holds the uterus in a retroflexed position, but I do not believe that it has an important rôle to play in holding it in position, because of

the fact that peritoneal tissue and very little muscle tissue hold it in place. I have never done the operation. I do not believe that it is a good operation, however, for the reason that it is done through the vagina. If such a condition could be brought about through the abdominal wall by making a folding of the round ligament on itself, if it had sufficient muscle tissue to hold it there, I believe that the operation would be a good one.

DR. J. RIDDLE GOFFE, New York: I have utilized the uterosacral ligaments for many years and I am a firm believer in their utility. Dr. West, in describing his experiment by which the uterine ligaments were put on the stretch, said that the uterosacrals were the first to show tension. That is evidence of their relative importance in maintaining uterine equilibrium and of the very slight support needed by the uterus when in the normal position. Only when retroverted can we need the firmer and stronger ligaments. The uterosacral ligaments are all-sufficient when the uterus is in normal position.

In the operations described this morning the entire stress was laid on the anatomy and the pathology discovered. The physiologic functions were entirely ignored. The doctors speak of putting a plug in the hernial hole, of building up a bottom to prevent things from coming out, and Dr. Montgomery even speaks of the interposition of muscles. I should not consider the interposition of muscles for closing this space. I should restore those muscles to their normal position so that they can perform their normal function, which is to lift the anus in defecation and deflect intra-abdominal or pelvic pressure. They are not plugs or dead tissues; they are vital energizing tissues and we should look to their function and then restore it, and not the anatomy only.

I must disagree with Dr. Polk in his assertion that the weak spot is in front. In the great majority of these cases the uterus comes down first, then the rectum and finally the bladder. The support in front is, as a rule, the last to yield. Therefore, in all these operations, if the woman is in the child-bearing period, we must first restore the uterus to its normal position, then look after the bladder and lastly the rectum.

There has been no reliable principle up to a very recent date on which these operations can be based. Drs. Benjamin and Dorsett have struck the keynote in referring to the intra-abdominal pressure. It is the direction and control of the intra-abdominal pressure that determines whether or not the uterus will stay in place. The intra-abdominal pressure when it impinges on the uterus forces it down until the ligaments are taut. The cervix gives way and allows the uterus to tilt up sufficiently to deflect the pressure into the pelvic outlet.

The thing we want to look to is the proper restoration of the uterus to the normal position in child-bearing women by restoring its ligaments so that it can meet and control intra-abdominal pressure when it comes down in the pelvis. I have an operation that is applicable to child-bearing women, and that is modified to meet conditions that come later in life. In child-bearing women I restore the uterus to the normal position, shorten the ligaments to permit it to meet the abdominal pressure efficiently, and then stitch up the bladder so that it will be suspended from above.

In elderly women, at the menopause or later, I remove the uterus, but restore a deflecting plane made up of the broad ligaments to control and direct the intra-abdominal pressure. That is the entire principle and explains why it is that the uterus is retained in place so easily when in its normal position and why, when it is not, we have these disastrous consequences.

DR. ROBERT EARL, St. Paul: The crucial point in the consideration of the various operations for prolapse of the uterus is whether or not the uterus is suspended or supported. What maintains the uterus in position? The peritoneum, blood-vessels, ligaments, pelvic-floor muscles, pelvic fascia, fat and skin must be considered. That the peritoneum cannot hold the uterus in position is evidenced by the fact that hernia occurs if there is a constant fight between intra-abdominal pressure and the peritoneum. That the blood-vessels and nerves cannot hold the uterus in position is evidenced by the fact that there is a marked elongation of the blood-vessels and nerves in cases of floating kidney or other loose abdominal organs. The round ligaments never hold the uterus in position because they are curved. You can place a forceps on the cervix and pull the uterus down and out and the round ligaments will not become tense or straight. The uterosacral ligaments do, in a considerable measure, help to maintain the uterus in position by suspension; but, the uterosacral, like the round ligaments, are made up of muscle tissue of the uterine type and one of their functions is to hold the uterus down, aided by abdominal pressure, during the pains of labor. One of the functions of the round ligaments is to hold the body of the uterus forward, and the function of the uterosacral is to hold the cervix back, thereby maintaining the uterus on a horizontal plane in order that the abdominal pressure shall strike the uterus on its broad, flat surface, forcing it against the vaginal walls and forcing all against the most resistent part of the perineum. The broad ligaments being composed of peritoneum, connective tissue and blood-vessels all stretch. The levator ani muscle is practically an abdominal-wall muscle. It contracts synchronously with the other abdominal-wall muscles. Were it no so, we should have bulging of the perineum during inspiration. In spina bifida and injury of the fourth sacral nerve, prolapse of the pelvic organs occurs in the female and a bulging of the perineum in the male. This I believe is conclusive proof that the pelvic organs are supported by the muscular perineum and are not suspended by the ligaments.

There are many operations recommended, but each operator concludes by saying that the operation must be completed by building up the perineum. I believe that that is the secret of success in all of these operations—the building up of a good muscular perineum. When the perineum is relaxed it is because of laceration, atrophy, dilatation or weakness of the muscular tissue. Then the intra-abdominal pressure forces the pelvic organs gradually out; therefore the weakened pelvic floor is the main cause of prolapse. In those cases in which it is not possible to build up a good muscular perineum, either the uterus or stump of the cervix must be anchored securely to the anterior wall of the abdomen or there will be a considerable percentage of failures.

DR. A. GOLDSPOHN, Chicago: In the Wertheim-Schauta-Watkins operation the uterine cavity becomes wholly inaccessible. This is serious. We know that senile endometritis is frequent enough in women who have not a sufficiently distorted position of the uterus to invite it. I should abhor creating that condition in the pelvis of a woman even if she could not conceive. I think that it would be better to remove the uterus, although that is not the best way of curing the prolapse. We can utilize that old uterus in curing the prolapse and simplify the operation in these decrepit women by not removing it. I am glad to hear emphasis laid on the proper reconstruction of a foundation from below by getting together the lateral halves of the levator ani muscle and the deep pelvic fascia in a firm union in the median line by transversely placed sutures, not one inch from the vulva as Dr. Martin suggests, but two inches. It cannot be done with less than that. It was my privilege fourteen years ago, to introduce the procedure known as "intrapelvic, intravaginal perineorrhaphy without loss of tissue." I am sorry that I have neglected to say much about it since that time.

If you will make an actual restoration of the pelvic floor, the morbid conversion of things that Wertheim proposed is not necessary. It will be sufficient simply to detach the bladder from the front of the uterus and hang the uterus in a perpendicular position, not horizontally, simply turn it forward half as far, a quarter instead of a half of the circle. Then place the bladder, the mischief-maker, where it cannot do harm, that is, on top of the fundus of the uterus, and anchor the uterus firmly to the anterior vaginal wall. Then build up the right kind of foundation from beneath. In some extreme cases of old women, in whom the parts have become extremely relaxed, atrophy is an important factor. It is better in these cases to make a ventral incision and anchor the fundus of the uterus to the abdominal wall by a Gilliam operation well drawn up, plus ventrofixation by a fibrofibrous

union. This gives a union that will never let go. Then you must do a real restoration of the pelvic floor.

The operation to be discussed is not prolapse of the uterus in women who are no longer to bear children, that I regard as practically accomplished. The question before the profession is to find an operation that will be curative in young women who are yet to bear children; that class of women we have few of in this country, but many abroad. The efforts of Dr. Martin in that direction are commendable; but I would call attention to the fact that his suggestion of drawing the sacro-uterine ligaments from behind and uniting them in front of the cervix is an operation of a man in Dublin, published about two years ago. The anatomic study of Dr. Somers calling our attention to the importance and great utility of the uterosacral ligaments is exceedingly commendable.

DR. GEORGE GELLHORN, St. Louis: The multiplicity of conditions encountered makes it imperative that we familiarize ourselves with a number of operative procedures. It is obvious that an operation which is indicated in a woman at or near the menopause cannot be applicable during the child-bearing period; nor can a method by which a uterus may be saved be equally suited to cases in which the uterus must be removed, for instance, in fibroids. What becomes of our boastful principle of individualization in medicine if we operate on every patient by the one method that we happen to know best, or by chance have originated ourselves? The Wertheim-Schauta-Watkins operation is excellent in certain well-defined cases, but totally unsuited for women in the child-bearing age. For these the Vineberg method will be found to have many attractive features. The Goffe and Polk methods and a dozen others are available and advisable in certain cases, but none of them is complete without a solid perineorrhaphy.

DR. G. BETTON MASSEY, Philadelphia: I believe that if surgeons will refer their patients after operation, and possibly some of the younger women before operation, to adequate treatment of muscle-exercising character, they will get far better results. They are not dealing with a fibrous skeleton alone, but with muscular tissue. We have come back to the belief in the importance of support from below. Muscular tissue is above, in the abdominal wall, as well as below. We should restore the abdominal tone, and that can be done effectively by powerful galvanic currents turned on and off rhythmically. A more recent current for that purpose is known as the sinusoidal current, having to a great extent the characteristics of the old galvanic current and of the faradic current. Either of these currents is particularly applicable to younger women. I think all will usually fail in older women. I urge it after operation and before operation. It should be done, however, by a man who understands its application, and it should be continued for an adequate length of time, which is not less than three months.

DR. E. E. MONTGOMERY, Philadelphia: I endeavored to leave the impression that the operation which I suggested was limited in its application to a certain class of cases. I do not wish to be understood as advocating the removal of the uterus in every case of prolapse. That has been mentioned by the men who have discussed this subject. It is important that we consider the various conditions which maintain the uterus in its proper position. This is not the peritoneum alone, nor the muscular structure. It is a combination of all the structures working together that serves to keep the organ in its proper position. It is impossible after an extensive prolapsus to restore these structures to their normal relation. We are obliged to bring them together and place them out of the ordinary relation and situation in order to accomplish restoration and prevent hernia. In this displacement there is, as mentioned by Dr. Polk, a weakened position, generally in front, which permits sliding down of the bladder; the uterus may push down in the center. There is also a weak point between the levator ani muscles and the rectum. We see through this prolapse of the rectum in women who have not given birth to children. It is simply a diastasis of the levator ani muscles which permits the rectum to come down between them. If this has continued for a length of time the rectum becomes adherent to edges of the muscles. The levator ani muscles can be brought together in front to form a wall to prevent protrusion of the rectum. It is important, as mentioned by Dr. Earl and Dr. Goldspohn, that this operation should be carried high on this muscle so that the muscle wall shall be brought together in front of the rectum for some distance. I have seen cases in which after operation hernia recurred; the intestine and peritoneum pushing down caused stretching and atrophy of the structures below, requiring subsequent operation. The uterus can be retained in position by folding together the structures. Dr. Polk was modest in not having mentioned an operation of his own device, that of dissecting down between the bladder and uterus in front, folding together the structures so as to hold up the uterus, then shortening the broad ligaments posteriorly, bringing the uterosacral ligaments over them in such a way as to maintain the uterus at a higher level. I wish also to commend the operation described by Dr. Somers as being an exceedingly valuable addition to the subject of displacements of the uterus.

DR. GEORGE B. SOMERS, Omaha: My interest in the sacro-uterine ligaments is directly connected with my interest in the problem of curing prolapse. It is quite apparent from the papers and discussions presented to-day that men who have attempted to devise operations solving the problems of prolapse have divided themselves into two camps, and in their operation of choice one camp advocates the removal of the uterus, the other its preservation. The two principal papers to-day illustrated this. One author advocates the Wertheim–Schauta–Watkins operation; the other, an operation that I think we may safely attribute to Dr. Goffe, namely the removal of the uterus and the uniting of the round and the broad ligaments together as a support below. There would be no quarrel at all on this subject if it were not for the operation of choice. If anybody says that the removal of the uterus is the operation of choice, then at once the conservative camp rises in arms. On the other hand, those who advocate removal will say that the preservation of the uterus is not a surgically attractive procedure. When we can agree that one operation is good in one case, and that the other operation is good in another, then the problem is settled. I think that Dr. Montgomery in prefering hysterectomy saved himself from completely going over to the enemy by saying that he did not advocate removal in all cases. When it is necessary to remove the uterus, then the operation described by Dr. Montgomery is the best operation that can be performed. When a cystocele complicates prolapse, the anterior vaginal wall must be supported. There are two ways of doing this: (1) by placing the uterus beneath the bladder or (2) by removing the uterus and bringing the round ligaments underneath. My preference is for the former for conservative reasons.

Returning to the sacro-uterine ligaments, my attention was directed to them by the fact that in the operation of vaginofixation we frequently find that the uterus will assume a flexed position after the operation is completed, because the cervix is left without support. The only remedy for this that I can see is the use of the sacro-uterine ligaments, shortening them so as to lift up the vaginal vault.

Sneeze Powders.—Charles H. LaWall, in a paper on "Chemistry and Practical Jokes" (*Pennsylvania Pharm. Assn. Proc.*, 1913, p. 221), describes the composition of sneeze powders as follows:

"It is a different matter, however, in the case of the sneeze powders, as they are called, which are sold in tiny vials labeled 'Kachoo Powder,' each containing about 10 grains of a gray powder which I found to be one of the most acrid and irritating substances known to chemistry. Contrary to the usual supposition, red pepper, hellebore, bayberry, sanguinaria, tobacco or other common sternutatories, are not present in this material, which I have recently investigated and found to consist almost entirely of acridin, probably a crude form of the substance.

"Acridin, $C_{13}H_9N$, is a basic substance obtained as a fraction of coal-tar, associated with crude anthracene. Its name is indicative of its properties. It is a powerful sternutatory and skin irritant. The only legitimate use to which it has ever been put is as an insecticide and also in compositions for coating the bottoms of vessels to preserve them. It is said by some authorities that the preservative properties of some coal-tar products are due to the presence of small amounts of acridin."

STUDIES IN AUSCULTATORY BLOOD-PRESSURE PHENOMENA

THE CLINICAL DETERMINATION OF DIASTOLIC PRESSURE *

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A mass of data concerning the value of systolic pressure readings has accumulated within the past few years. Hypertension has become a word which is in danger of being worshipped as a fetish. It seems to me that much of the hypertension which we see is a compensatory effort on the part of the heart to maintain the circulation in equilibrium. Regarded in this light it becomes physiologic, and successful attempts to reduce it not infrequently produce unpleasant results.

To the other phenomena of the blood-pressure, the diastolic pressure and the difference between the systolic and diastolic pressures—the pulse-pressure—but little attention has been paid. Possibly this has been due to the fact that the methods of measuring the diastolic pressure have not been uniform, and thus no comparison was possible between the results of observers, and the results of any one observer were so variable that no conclusions could be drawn. It is my purpose to call attention to a reliable and uniform method of determining the point at which diastolic pressure should be taken.

It will, I think, be granted now that the auscultatory method of measuring blood-pressure is the most satisfactory and uniformly accurate of all the methods practicable for bedside work. Further, that the systolic pressure is to be read at the moment when, with a gradually decreasing pressure in the arm cuff, a clear clicking tone can be heard. The diastolic pressure has received but scant study. This has no doubt largely been due to the fact that there were various more or less inaccurate methods in use, and no method which gave results comparable to those which could be obtained for systolic pressure.

Although Korotkoff[1] in his original communication called attention to the fact that the diastolic pressure should be taken at "the end tone," that is, at the point at which the clear third tone was suddenly replaced by a dull tone, and Fischer,[2] and Lang and Manswetona[3] confirmed this, Ettinger,[4] on the basis of a large series of observations, made his five tone phases and held that the diastolic should be read at the disappearance of all sound. Gittings,[5] and Goodman and Howell[6] in their observations evidently took Ettinger's word and used the disappearance of all sound as the place to measure diastolic pressure. Goodman and Howell[6] went so far as to divide off the phases between first and fifth into a series of four tone phases and, calculating the percentage of every tone phase to the pulse-pressure, they attempted to show that the sum of the percentages between first and second and fourth and fifth should be less than the sum of second to third and third to fourth. That their attempts to measure heart strength by this means is inaccurate will be demonstrated later in this paper. They did call attention, however, to the fact that one could note irregularities in the strength of the individual heart beats more accurately with the auscultatory method than by listening directly over the heart. They called these audible irregularities, tonal arhythmias.

It will not be granted that after one has taken the systolic pressure he has completed the blood-pressure determination. It seems logical to believe that the pulse-pressure, the actual head of pressure driving the blood into the peripheral vessels, and representing the systolic output of the heart, should be most important in cardiac prognosis. We cannot determine the pulse-pressure unless we have measured the diastolic pressure. It is not so much the knowledge of the pressure under which an organ receives its blood, as it is the knowledge of the amount of blood an organ receives per unit of time, that enables us to judge of functional capacity. It would be important to be able to calculate the velocity of the blood. Within limits, but within very small limits, there is a relationship between pulse-pressure and velocity. Within these limits, theoretical as well as experimental, the velocity of flow is equal to the pulse-pressure times the pulse-rate. Unfortunately this simple formula is dependent on so many disturbing factors in the circulation that it is not possible to use it in but a limited number of cases. In normal persons after exercise this formula apparently holds good; but in the high pulse-pressures of chronic nephritis, for example, it is most inaccurate, for we have no means of measuring the mass movement of the blood. In general, I think, it may be said that a diminution of the pulse-pressure means lessened velocity of blood-flow, but the reverse does not hold good. Without going further into the value of the pulse-pressure determination, which will be dealt with in Dr. Stone's paper, suffice it to say that there seems to be a very definite value, and therefore the determination of diastolic pressure assumes considerable importance.

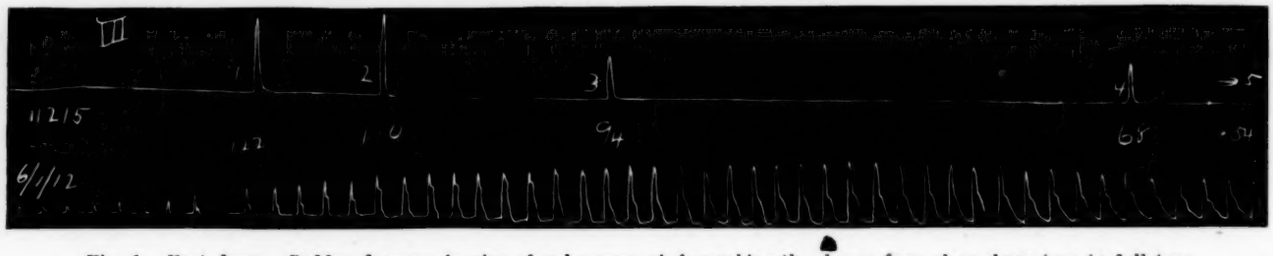

Fig. 1.—Fast drum. Sudden decrease in size of pulse-wave at 4, marking the change from clear sharp tone to dull tone.

* From the Medical Clinic of the Milwaukee County Hospital.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Korotkoff: Zur Methodik der Blutdruckmessung, Mitt. d. mil. med. Akad. zu St. Petersburg, 1905, xi, 365.

2. Fischer, J.: Die auskultatorischen Blutdruckmessung im Vergleich mit der oszillatorischen von Heinrich von Recklinghausen und ihr durch die Phasenbestimmung bedingte Wert, Ztschr. f. diatet. u. physik. Therap., 1909, xii, 389.

3. Lang and Manswetona: Zur Methodik der Blutdruckmessung nach von Recklinghausen und Korotkoff, Deutsch. Arch. f. klin. Med., 1908, xciv, 441.

4. Ettinger: Die auskultatorische Blutdruckmessung nach Korotkoff, Wien. klin. Wchnschr., 1907, xx, 992.

5. Gittings, J. C.: Auscultatory Blood-Pressure Determinations, Arch. Int. Med., August, 1910, p. 196.

6. Goodman and Howell: Further Clinical Studies in the Auscultatory Method of Determining Blood-Pressure, Am. Jour. Med Sc., 1911, cxlii, 334.

In a paper[7] read before the Wisconsin State Medical Society in June, 1912, evidence was brought forward to show that the diastolic pressure should not be taken at the disappearance of all sound when using the auscultatory method. As has been said, this was the point used by many investigators. The conclusion arrived at from a study of records made with the Erlanger sphygmomanometer was that "the diastolic pressure is not usually at the point of disappearance of all sound—the fifth phase." This was a negative conclusion, but seemed to render invalid the work of those who took the fifth phase as the diastolic pressure.

Erlanger[8] showed some years ago that with his instrument the point at which diastolic pressure should be read was at the instant when the maximum oscillation of the lever suddenly became smaller. It was while checking up the graphic with the auscultatory method with Erlanger's instrument that it was noticed that the disappearance of all sound did not correspond with this sudden diminution of the oscillation of the lever connected with the brachial artery. The question seemed important enough to settle for future work, so that an attempt was made to show experimentally on dogs that the fifth phase was below diastolic pressure, and an effort was made to find out just what phase in the auscultatory phenomenon was the real measure of diastolic pressure. These experiments[9] were carried out in the physiologic laboratory of the University of Wisconsin. The conclusions reached from these experiments were that the diastolic pressure was not at the point corresponding to the disappearance of all sound, but at the change from clear to dull tone. This corresponded with the minimal pressure recorded by a Dawson maximum and minimum pressure recorder inserted in the dog's carotid pressure manometer system.

With this data clinical observations were resumed. It was found that with the exercise of greater care and precision rather sharp records were possible. It was seen that during the period of the third tone phase the oscillations of the lever on the drum reached a maximum and remained at approximately the same height for some millimeters while the pressure was gradually falling. At a point at which the third tone, clear and distinct, became dull, there was an appreciable decrease in the height of the pulse-wave (Figs. 1 and 2). From this point to the disappearance of all sound there was a gradual diminution of the size of the pulse-waves.

For normal pressures the difference between the fourth (dull) tone and the fifth (disappearance of all tone) phase, amounted to from 4 to 10 mm. Occasionally the difference was so little, the change from sharp third tone through fourth dull tone to disappearance of all sound was so abrupt, that one could take the disappearance of all sound as the diastolic pressure with an error of not more than from 2 to 4 mm. For high pressures the difference was never less than 8 mm., and was found as much as 16 mm.

Comparative readings were taken by watching the oscillations of the mercury column while recording the oscillations of the lever on the drum. It was found impossible to obtain readings comparable in accuracy to the auscultatory method, owing to the fact that the weight of the mercury column did not record changes as quickly as the lever attached to the air tambour. With the dial instrument, however, it was seen that the sudden lessened amplitude of the needle oscillations after the maximum was reached corresponded accurately to the point at which the third tone became dull. Hence with some practice one could use this point on the dial instrument as the place to read diastolic pressure. It is better, simpler and, for most observers, more accurate to use the stethoscope and hear the change of sound.

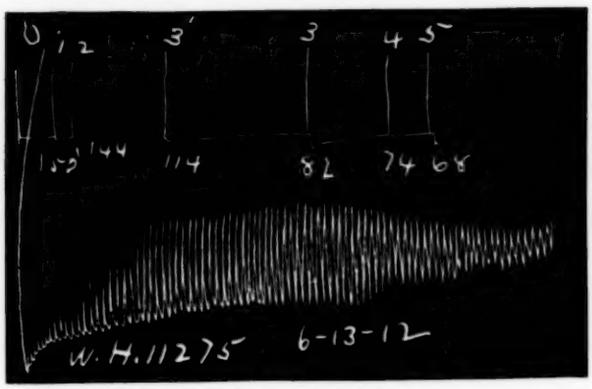

Fig. 2.—Slow drum. Sudden decrease in amplitude at 4.

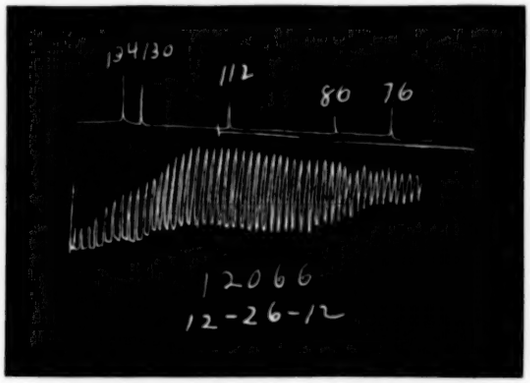

Fig. 3.—Sudden decrease near 86, fourth tone.

In normal persons it is a matter of no difficulty to determine accurately the diastolic pressure. In many cases of decompensation with intermittent and irregular hearts it is impossible to determine either the systolic or diastolic pressure. In the cases of permanently irregular hearts it is exceedingly doubtful whether one can obtain even approximately accurate readings.

In cases of uncomplicated aortic insufficiency the diastolic pressure may be as low as 20 mm. Between 30 and 40 is a common enough finding. Moreover, the change from the third clear tone, which may be so loud as to be uncomfortable to the ear drums, to the fourth dull tone is particularly sharply defined.

CONCLUSION

We may affirm that there is both clinical and experimental evidence to prove that the point at which diastolic pressure should be read, when using the dial instrument, is at the point where the fling of the lever during the gradual lowering of pressure suddenly becomes less, or, better, with the auscultatory method, where the clear sharp third tone suddenly becomes dulled.

141 Wisconsin Street.

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8. Erlanger, J.: A New Instrument for Determining the Minimum and Maximum Blood-Pressures in Man, Johns Hopkins Hosp. Rep., 1904, xii, 53.

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THE CLINICAL SIGNIFICANCE OF HIGH AND LOW PULSE-PRESSURES WITH SPECIAL REFERENCE TO CARDIAC LOAD AND OVERLOAD*

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METHOD AND PURPOSE OF STUDY

The attempt has been made, in an analysis of comparative pulse-pressure observations in 170 persons, to determine what, if any, clinical significance was to be attached to certain high and low auscultatory readings. For convenience of classification, the patients have been grouped as in the accompanying tabulation:

Conditions	Number of Patients Studied
1. Normal circulatory conditions	61
2. Acute infections	23
3. Arterial hypotension	9
4. Arterial hypertension	51
5. Myocardial and valvular lesions:	
(a) With compensation	9
(b) With decompensation	14

The readings were taken as follows: With the patient at rest, compression was made with a 12 cm. arm-band and the systolic pressure taken by palpation. The compression was then released and, after an interval sufficient for reestablishment of the circulation in the arm, the stethoscope was lightly applied over the brachial artery below the arm-band. Compression was reapplied and the systolic pressure taken by auscultation. The reading was taken at the moment the first clear sound was heard. The compression was then gradually released and the various tone phases noted. At the point at which the third phase of loud tone became suddenly and markedly dull—the fourth phase—the diastolic pressure was taken. The pulse-pressure was taken as the difference between systolic and diastolic pressure.

The difference between the maximum pressure exerted by the kinetic energy of the blood-column and the minimum pressure or potential energy exerted by the vessel walls is the pulse-pressure. It represents the intermittent burden of pressure imposed on the arteries by the heart's energy in systole in order to force the blood toward the periphery and maintain the circulation. The pulse-pressure may therefore be defined as the amount of pressure exerted by the heart during systole in excess of the diastolic pressure. It measures the excess of dynamic, over potential, energy. For clinical purposes it represents the load of the heart. Under normal conditions it is approximately 50 per cent. of the diastolic pressure. The systolic and pulse-pressures represent myocardial values, while the diastolic pressure represents arterial resistance. Incidentally it may be mentioned that the pulse-pressure is that part of the heart's energy which produces the distention of arteries which is recognized as the pulse.

HEART LOAD AND OVERLOAD

The many factors make the interpretation of any given series of cases an exceedingly difficult problem. One is confronted with many seeming paradoxes. For example, in sixty-one normal persons with an average systolic pressure of 123 and diastolic of 80, the pulse-pressure average was 40. The amount of energy expended, therefore, to maintain the circulation in excess of that required to open the aortic valves and overcome the resisting pressure of 80, was 40. The normal load may therefore be considered to be 40/80, or 50 per cent. of the diastolic pressure. In twenty-one acute infection recovery cases, the average systolic pressure was 119, the diastolic 76, the pulse-pressure 42. The amount of energy expended, or load, necessary to maintain the circulation in excess of the diastolic pressure was therefore 42/76, or 55 per cent. On the other hand, in five fatal acute infections, the average systolic pressure was 102, the diastolic 68, and the pulse-pressure 34. The amount of energy expended, or load, was 34/68, or 50 per cent.

It is apparent, then, that the problem involves the consideration of other factors, such as the mass movement of the blood and the venous pressure. Three years ago, before this Section, Hoover[4] pointed out that "the systolic and diastolic pressure may be within normal limits and still the mass movement of blood be much impaired," as was evidenced by marked signs of myocardia[l] inefficiency, such as a positive venous pulse, cyanosis, dyspnea and edema. This has been observed in some of the fourteen decompensated myocardial cases of this series. The mass movement of blood-volume was impaired without marked alteration in the systolic and diastolic pressures. On the other hand, it appears that certain significant facts have been disclosed in the study of these cases, for while the average diastolic pressure, within normal limits was 84, the systolic was 148 and the pulse-pressure 64. The amount of energy expended in systole, or load, to maintain the impaired circulation, in excess of the diastolic pressure, was therefore 64/84, or 76 per cent., an overload of 26 per cent. The same condition was found to exist in hypertension cases. In fifty-one patients, the average systolic pressure was 161, the diastolic 95 and the pulse-pressure 66. The amount of energy expended, or load, was 69 per cent., an overload of 19 per cent. This was especially noticeable in the forty-seven patients over 40 years of age. Their average systolic pressure was 171, the diastolic 100 and the pulse-pressure 71. The amount of energy expended in systole, or the heart load, was 71/100, or 71 per cent., an overload factor of 21 per cent.

The question immediately arises as to how long the heart integrity may be preserved under such conditions. It is apparent that many persons with high pressures, and many hearts with impaired valves, are not seriously embarrassed for many years, owing to the compensatory hypertrophy and increased capacity for work which fortunately follow. It should be emphasized that high systolic, with slightly increased diastolic, pressures and a corresponding increase in the pulse-pressure is a compensatory attempt on the part of the heart to adjust itself to new conditions.

Preceding circulatory failure, however, but while the myocardial efficiency is impaired, there may be an essential change in the readings, with a tendency toward equal or higher pulse-pressure than diastolic pressure.

In six of the fourteen decompensated myocardial cases, the pulse-pressure approached or exceeded the diastolic as follows:

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

*Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

4. Hoover, C. F.: A Criticism of the Blood-Pressure Apparatus, THE JOURNAL A. M. A., Sept. 3, 1910, p. 815.

CASE 1.—T. W., mitral stenosis with regurgitation, cardiac dilatation, perpetual arhythmia, dyspnea and general anasarca. The average diastolic pressure for six weeks before death was 63, pulse-pressure 79. The amount of energy expended, or load, was 79/63, or 125 per cent., an overload of 75 per cent.

CASE 2.—J. B., mitral regurgitation, with dilatation of left ventricle, dilatation arch aorta (?). The diastolic pressure was 90 and the pulse-pressure 100. Sudden death occurred three days after this reading. The amount of energy expended was 100/90, or 111 per cent., an overload of 61 per cent.

CASE 3.—Mrs. J. L., paroxysmal tachycardia, rate 172, heart-block (?), systolic murmur over apex, thrill over precordia, dyspnea, but no edema. The diastolic pressure was 95, the pulse-pressure 85. The amount of energy expended, or load, was 85/95, or 90 per cent., an overload of 40 per cent.

CASE 4.—J. B., mitral regurgitation, with decompensation, diastolic averages 57, pulse-pressure 90. The amount of energy expended was 90/57, or 158 per cent., an overload of 108 per cent.

CASE 5.—H. C., mitral regurgitation, hypertrophy of left ventricle, frequent extra systoles, dyspnea on slight exertion, influenza. The diastolic pressure averaged 46, pulse-pressure 49. The amount of energy expended was 49/46, or 106 per cent., an overload of 56 per cent.

CASE 6.—Miss A. C., mitral stenosis with regurgitation, diastolic averages 85, pulse-pressure 70. The amount of energy expended was 70/85, or 82 per cent., an overload of 32 per cent.

The load in seven of the remaining patients with myocardial decomposition averaged 61.6 per cent., or an overload of 11.6 per cent.

MYOCARDIAL FATIGUE AND CIRCULATORY FAILURE

We may consider that under certain conditions the myocardial overload may exist for years with little or no evidence of decompensation. Judging from this small series of cases it would appear that when the overload factor exceeds 50 per cent., the patient may be in danger of myocardial exhaustion at any time of slight overstrain. In fact, a majority of the forty-seven hypertension patients past forty years of age, in this series, did not show clinical symptoms of hypertension until the overload factor exceeded 25 per cent. Some were quite free from symptoms when the overload was 50 per cent, but most of these were able to regulate their lives, free from the liability of overstrain. As a rule, the greater the overload, the greater the danger. The following cases are given as examples:

CASE 7.—Mrs. W. J., aged 53, plethora, systolic 180, diastolic 130, pulse-pressure 50, heart-load 50/130, or 38 per cent. If the deductions given before hold true, we would consider this patient in greater danger of cerebral accident than myocardial fatgue because of the high diastolic pressure.

CASE 8.—E. L., aged 63, with a history of earlier angina, systolic pressure 170, diastolic 85, pulse-pressure 85, has a heart load of 100 per cent., or an overload factor of 50 per cent. According to these deductions, he would be considered in danger of an impending myocardial decompensation at any time of overstrain.

In many instances it has been interesting to attempt to correlate the symptoms of failure with pulse-pressure observations.

CASE 9.—Miss F. H., aged 22, exophthalmic goiter and a pulse-rate of 132, showed a systolic pressure of 145, diastolic 75 and pulse-pressure of 70. The heart load was 93 per cent., an overload factor of 43 per cent. She died in shock five hours after removal of one lobe of the thyroid, under gas-oxygen anesthesia, by a competent surgeon.

In brief, it appears that with an overload factor of 50 per cent., in which the pulse-pressure equals the diastolic pressure, the danger of myocardial exhaustion is impending. To this factor is intimately connected, in instances associated with rapid heart-rate, the fact which Henderson and Barringer[5] have shown, that at rapid rates the shortened diastolic period cuts short the relaxation of the ventricle so that the ventricle does not have time to fill completely and, in consequence, the volume of blood thrown out in systole is diminished. The mass movement of blood would thus be impaired.

While this study does not warrant one in offering any expression as to the sequence of events which actually occurs in myocardial fatigue, it has been interesting to observe that when the pulse-pressure falls rapidly, or a low pulse-pressure of from 15 to 20 is present, actual circulatory embarrassment has occurred. The rapidity of the fall undoubtedly has much to do with circulatory failure, although in what way, remains to be determined.

CASE 10.—W. E., aged 60, came under observation with a systolic pressure of 195, diastolic 60, pulse-pressure 135. The heart load was 225 per cent., an overload factor of 175 per cent. The patient showed a left ventricle dilatation, with systolic murmur at apex, bigeminal pulse and general anasarca. Under digitalis and free purgation his general condition improved, with disappearance of edema, until three weeks later the systolic pressure was 152, diastolic 100, and pulse-pressure 52, entirely within normal limits. He died suddenly about three weeks later. The mass movement of blood must have improved with the decrease in heart overload, for the heart-rate was not rapid and still circulatory failure followed.

It is beyond the province of this paper to enter into the discussion of these changes even though the discussion of one phase of cardiac fatigue immediately concerns the discussion of all others. It appears probable, though, that when the load suddenly decreases, cardiac dilatation has occurred.

CARDIAC DEATHS WITH LOW PULSE-PRESSURE

In certain deaths with low pulse-pressure, the following conditions were present:

CASE 11.—G. M., aged 37, streptococcus septicemia, with endocarditis, all valves apparently involved, pulse-rate 120 to 140, subnormal temperature for two weeks before death. Systolic pressure varied from 85 to 100, diastolic from 70 to 75, pulse-pressure from 10 to 25. The average pulse-pressure for three days before death was 20.

CASE 12.—H. B., aged 54, abscess and gangrene of lung following pneumonia. Systolic pressure was 105, diastolic 85, pulse-pressure 20, eight hours before death.

CASE 13.—C. D., aged 24, postdiphtheritic pharyngeal paralysis, vagus paralysis (?). Pulse at wrist 36, over precordia 120, systolic pressure 90, diastolic 70, pulse-pressure 20, twelve hours before death.

CASE 14.—Mrs. R. A., aged 33, probable gastric ulcer starvation and nephritis. The systolic pressure was 115, the diastolic 100, pulse-pressure 15. An unfavorable surgical prognosis was given and the patient died two weeks later from inanition.

The pulse-pressure often reaches as low a point as twenty, without serious clinical evidences of myocardial exhaustion although it appears from this study that these patients are undesirable surgical risks and may be on the verge of actual circulatory failure.

THE PULSE-PRESSURE IN HEMORRHAGE

Henderson and Barringer have shown that in hemorrhage or circulatory shock the venous pressure is low. They believe that the so-called "critical factor" refers to the failure of venous supply to the right heart and

5. Henderson, Y., and Barringer, T. B., Jr.: Am. Jour. Physiol., 1913, xxxi, 288, 352, 362, 399.

that failure of the circulation in shock is due primarily to the abolition of venous, not arterial, tonus. It would seem that a lowered venous pressure would decrease heart output by lessening the pulse-pressure on the arterial side. In one patient, who died two days after recurring typhoid hemorrhages, the systolic pressure was 67, the diastolic 47, the pulse-pressure 20.

Wiggers[9] has shown that a progressive decrease in pulse-pressure indicates, as a rule, a continuance of hemorrhage.

It would seem that the three important circulatory factors producing death in such instances were:

1. The peripheral resistance is suddenly diminished, owing to the hemorrhage, with increased heart-rate such as occurs experimentally when a large vessel is severed in an animal.

2. With rapid heart-rates, the volume of blood thrown out by the succeeding systole is diminished, because of insufficient time for ventricle relaxation.

3. The respirations are then increased in an endeavor to maintain venous pressure sufficient to distend the right ventricle as rapidly as the duration of diastole allows. But the venous pressure is low in hemorrhage, with the result that the right ventricle fills incompletely, which would diminish first the volume output of the right ventricle and then the left ventricle. With a decreased volume output the load or pulse-pressure would be diminished. Cardiac death may occur at this point, or the rapid respirations may lead to increased carbon dioxid elimination with the result that the carbon dioxid content of the blood falls to the point below which the respiratory center is stimulated, and apnea results.

In one patient with severe pulmonary hemorrhage, occurring in glass blowers' emphysema and tuberculosis, the systolic pressure was decreased and the diastolic increased during the hemorrhage, with pulse-pressure lowered to 20, which was increased to 40 within a few hours after the last hemorrhage. In another patient with a flank stab-wound lacerating the kidney cortex, with severe retroperitoneal hemorrhage and peritonitis from puncture of the colon, the systolic pressure was 98, the diastolic 55 and the pulse-pressure 43 during the hemorrhage. After drainage of the abdomen and enteroclysis, the diastolic fell to 38, while the pulse-pressure was increased to 54. This was in accord with the observation of Hürthle that the pulse-pressure increases with a decreased peripheral resistance due in this instance probably to toxic vasodilator effects of the peritonitis. Shortly before death from peritonitis, the diastolic fell still further to 35, and the pulse-pressure was increased to 75.

9. Wiggers, C. J.: The Prognostic Significance of Pulse-Pressure Changes During Hemorrhage, Arch. Int. Med., September, 1910, p. 281.

THE PULSE-PRESSURE IN ANEMIA

In three instances the systolic pressure varied from 120 to 135, the diastolic from 60 to 85 and the pulse-pressure from 45 to 65. The patient with the lowest red count, 1,630,000, had the lowest diastolic pressure of 60, and in consequence the highest pulse-pressure, 65.

THE PULSE-PRESSURE IN CARDIAC NEUROSES

It has been noticed in several instances of so-called irritable hearts, due to tobacco, that there were marked variations in all readings. For example:

Case 15.—O. G., aged 20, showed a systolic pressure of 135, diastolic 80, pulse-pressure 55, heart-rate 96. Ten minutes later the systolic pressure was 125, diastolic 90, pulse-pressure 35 and heart-rate 90.

It appears that marked variation within short intervals in the pulse-pressure observations should make one think of the neurotic cardiac element.

THE PULSE-PRESSURE CHANGES DURING EXERCISE

Different writers on this subject have suggested that the diastolic pressure is not affected, as a rule, by exercise in tests of the functional efficiency of the heart, while the systolic pressure is increased. The following experiments were made in persons with supposedly normal circulations.

Case 16.—R. S., at rest, had a systolic pressure of 125, diastolic 95, pulse-pressure 30. After twenty bending movements the systolic pressure had increased 10 points to 135, the diastolic had increased 5 points to 100 and the pulse-pressure was 35. After forty stationary running-steps, the systolic was increased to 145, the diastolic was 105 and the pulse-pressure was 40. After fifty additional stationary running-steps the systolic pressure was 160, the diastolic 110 and the pulse-pressure 50. During these exercises the systolic pressure had increased 35 points, the diastolic 15 points and the pulse-pressure 20 points.

Case 17.—W. S., at rest, had a systolic pressure of 118, diastolic 80 and pulse-pressure 38. After twenty bending movements, the systolic pressure was 122, the diastolic 78 and the pulse-pressure 44. After forty stationary running-steps, the systolic pressure was 122, the diastolic had fallen 4 points to 74 and the pulse-pressure was 48. After fifty additional running-steps the systolic pressure was 120, the diastolic 72 and the pulse-pressure was 48. During these exercises the systolic pressure remained practically stationary, the diastolic fell 8 points and the pulse-pressure was increased 10 points.

COMPARISON BETWEEN PALPATORY AND AUSCULTATORY READINGS

	Normal Circulatory Conditions		Acute Infections		Arterial Hypotension	Arterial Hypertension		Compensated Myocardial Lesions	Decompensated Myocardial Lesions
	35 Cases Under 40 Yrs.	26 Cases Over 40 Years	21 Cases Recovery	5 Cases Death	9 Cases Aver. Age, 37	4 Cases Under 40 Yrs.	47 Cases Over 40 Years	9 Cases Aver. Age, 36 Yrs.	14 Cases Aver. Age, 46 Yrs.
Systolic pressure, palpation, average	117	126	116	not palp.	101	142	167	120	145
Systolic pressure, auscultation, average	120	127	119	102	105	151	171	123	148
Diastolic pressure, auscultation, average	81	82	76	68	84	90	100	82	84
Pulse-pressure, average	39	41	42	34	22	61	71	41	64
	aver. 40								
Heart load, per cent., average	48	50	55	50	26	67.7	71	50	76

In both instances the pulse-pressure, or load, was increased by exercise.

THE INTERPRETATION OF TONE PHASES

The various tone phases heard by auscultation over the brachial artery below the arm-band during compression may be described as follows:

1. First phase, a phase of clear tones which is soon replaced by the second and third phases.
2. Second phase, a phase of muffled tones with a series of murmurs.
3. Third phase, a phase of clear tones which suddenly becomes the fourth phase.
4. Fourth phase, a phase of dull tones.
5. Fifth phase, disappearance of all sound.

Korotkow,[10] who first introduced in 1905 the auscultatory method for the determination of the arterial pressure, believed that the point at which all tones disappeared, the fifth phase, marked the diastolic pressure. It has been shown by Lang and Manswetowa,[11] in 1908, and by Warfield[12] in 1912, that the diastolic pressure coincided with the point at which the third phase of clear tone became suddenly and markedly dull—the fourth phase. This point has been used to determine diastolic pressure in this clinical study.

COMPARISONS BETWEEN PALPATORY AND AUSCULTATORY READINGS

The palpatory method, as will be noticed from the accompanying table, gave, as a rule, slightly lower readings than the auscultatory method.

THE INFLUENCE OF HEART-RATE ON PULSE-PRESSURE AND SYSTOLIC OUTPUT

It has been supposed by many writers that the volume of systolic output could be expressed by the formula, heart-rate multiplied by pulse-pressure.

Clinically, however, the heart-rate in circulatory shock —in the sense of Henderson—*increases out of proportion to the fall of pulse-pressure,* owing to the central vasomotor influence. Two examples, among others, may be mentioned.

CASE 18.—P. B., who died in circulatory shock from typhoid hemorrhages, showed a pulse-rate of 120 and pulse-pressure of 20, equal to an output of 2,400 unit volumes. The observation the following day, three hours before death, showed pulse-rate 148, pulse-pressure 20, equal to an output of 2,960 unit volumes. His circulatory condition should have shown improvement according to the formula but such was not the case.

CASE 19.—G. M., streptococcus septicemia, pulse-rate 120, pulse-pressure 10, equal to an output of 1,200 unit volumes. The observation two days later, seven hours before death, following an intravenous injection of strophanthin, showed pulse-rate 140 and pulse-pressure 25, equal to an output of 3,500 unit volumes. According to the formula his output was increased, but death occurred seven hours later.

It is therefore believed that in circulatory shock the pulse-pressure multiplied by the heart-rate does not give a reliable index of systolic output.

CONCLUSIONS

1. The determination of systolic and diastolic pressures by the auscultatory method is to be preferred to the palpatory method for systolic and column indicator oscillation for diastolic, because of greater accuracy.

2. The readings are slightly higher by the auscultatory than by the palpatory method.

3. The pulse-pressure measures the energy of the heart in systole in excess of the diastolic pressure. For clinical purposes it represents the load of the heart. Under normal conditions it is approximately 50 per cent. of the diastolic pressure. The myocardial load may therefore be expressed by the fraction

$$\frac{\text{pulse-pressure}}{\text{diastolic pressure}} \text{ or } \frac{\text{P.-P.}}{\text{D.P.}}$$

4. Since the diastolic pressure measures the peripheral resistance it is a better index of hypertension than the systolic pressure. A sustained diastolic pressure of from 100 to 110 signifies hypertension. The diastolic is less influenced by physiologic factors than the systolic pressure.

10. The pulse-pressure multiplied by the pulse-rate does not give a reliable index of systolic output in circulatory shock since the pulse-rate clinically increases out of proportion to the fall of pulse-pressure. This shortens the time during which the left ventricle is filled during diastole and lessens the systolic output, although by the formula, pulse-rate multiplied by pulse-pressure, the unit volume output may appear to be increased.

It is a pleasure to acknowledge the suggestions and criticism of Dr. E. W. Jackson of Rochester, New York, in the preparation of this paper.

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10. Korotkow, N.: Vrach. Gaz., 1906, p. 128.
11. Lang, G., and Manswetowa, S.: Deutsch. Arch. f. klin. Med., 1908, xciv, 441.
12. Warfield, L. M.: Studies in Auscultatory Blood-Pressure Phenomena, Arch. Int. Med., September, 1912, p. 258.

CLINICAL ASPECTS OF HYPERTENSION*

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While the question of hypertension has been thoroughly discussed during recent years, it is still one of the problems in medicine. With the introduction and general use of the sphygmomanometer, we have become acquainted with the frequency of increased blood-pressure, and have been able to follow its course; but the question of its etiology or pathologic physiology is largely undetermined. The present report is concerned merely with the present views of its etiology, a consideration of a series of cases observed during the past few years, and a brief discussion of the prognosis and treatment.

Arterial and renal changes have always been considered the most important factors in high blood-pressure. With our increasing knowledge of this subject, the importance of the renal factor has become more and more apparent, and coincidentally with this, lessened weight is attached to general arterial changes, especially if we exclude the arterial changes in the kidney. It is generally accepted that sclerosis of the peripheral arteries does not increase blood-pressure; and while it is acknowledged that involvement of the celiac axis or its branches, the great regulator of the blood-pressure, may give rise to hypertension, clinically this is probably a quite infrequent cause. The recent greater importance attached to renal lesion can be largely accounted for by improved methods of diagnosis of kidney lesions; or perhaps more accurately, it has been determined that apparently normal urinary findings do not exclude serious kidney involvement. The careful necropsy studies, and espe-

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cially the careful histologic examination of the kidneys of patients with approximately normal urines, and high blood-pressure, have shown how fallacious it may be to exclude nephritis in the absence of albumin and casts. Especially in extreme hypertension, 200 mm. or more, some form of nephritis is almost constantly present, and is probably responsible for the increased blood-pressure.

Kidney lesions are less frequently reported in patients with pressure below 180 mm., but it is scarcely probable that the lesser degrees of hypertension are due to different causes than those of extreme degree, but rather that the kidney involvement is less extensive and less readily detected. It is quite possibile that as our knowledge of the morphology of the kidney advances and methods are developed for the detection of finer histologic changes, kidneys now pronounced normal may fall into the class of the definitely pathologic. We now believe that a kidney cannot be pronounced normal merely from its macroscopic appearance, as many of these histologically show extensive interstitial or glomerular changes. Our functional kidney tests show, as it were, only the grosser kidney lesions. It must furthermore be borne in mind, as bearing on this particular subject, that a kidney may be so affected as to modify the general blood-pressure and still show proper elimination of waste. The recent discovery of the importance of glomerulonephritis lessens greatly the value of any but the most recent report on the prevalence of renal involvement in cases of hypertension. Especially must we view with suspicion those cases in which the diagnosis of nephritis has been determined by merely a macroscopic examination of the kidney.

Fischer[1] has recently furnished an interesting report of 550 cases of hypertension in which the clinical and pathologic evidence of nephritis has been carefully considered. His series does not differ materially from others previously reported except possibly in the care with which the cases have been studied. Sixty-two per cent. of these patients gave definite clinical evidence of nephritis, 15 per cent. were suspicious, and only 23 per cent. had a normal urine. Excluding those cases with pressure below 160, in only 3.6 per cent. was the urine normal. Necropsies were held in forty-two cases and in each instance definite microscopic evidence of nephritis was detected; although in fourteen of these the urine did not show evidence of renal trouble. This furnishes very good evidence that nephritis cannot be excluded when the urine is apparently normal.

In Krehl's clinic 87.4 per cent. of the cases with pressure of 200 mm., or higher, showed definite clinical evidence of nephritis, and forty-two of the forty-three cases coming to necropsy showed definite renal involvement; the majority showed interstitial or arterial changes. Statistics of this character might be multipled, varying somewhat in the percentage, but all showing the predominance of nephritis in patients with hypertension, and also the greater frequency of the clinical evidence of nephritis in patients with extreme hypertension.

There remains, however, a few cases of hypertension in which with the most careful examination by our present methods the kidneys appear normal. In a few of these the increased systolic pressure can be explained by an aortic regurgitation, in others by marked arteriosclerosis of the splanchnic arteries; but there still remain a very few cases, which at present we refer to as idiopathic. Most of these, however, present only moderate degrees of hypertension.

Assuming that renal changes are usually associated with high blood-pressure, we must still determine in what manner the hypertension is produced. The view has been abandoned that primary heart hypertrophy is responsible for the change in blood-pressure. The heart hypertrophy is probably always secondary. There are still many supporters of the old Traube and Cohnheim view that the mechanical interference with the blood-flow in the kidney was responsible for the condition. Failure to produce increased blood-pressure by ligation of the renal arteries, or by experimental production of multiple renal emboli, does not disprove this theory.

The attempt has been made to explain hypertension through retention of waste ordinarily eliminated through the kidney. None of the substances, however, which are eliminated by the kidney have a pressor action when injected into animals. On the other hand, when the eliminating power of the kidney is impaired by successive removal of small portions of it, finally a point is reached at which the animal develops a polyuria and increased blood-pressure (Tuffner, Bradford, Passler, Heimicke, Janeway,[2] Carrel). In order to produce these results about two-thirds of the total kidney substance must be removed. It is impossible, however, to say whether these results can be accounted for by lessened elimination or mechanical interference with the renal blood-supply. While in uremia there is usually a nitrogen retention, it has not been shown that such retention is responsible for the increased blood-pressure.

Especially in acute nephritis there is considerable destruction of kidney substance, and the view has been advanced that perhaps the products of such autolysis might have a pressor effect. Tigerstedt and Bergmann, having reported that a pressor substance could be obtained from the rabbit's kidney, furnished some support for this view. Others, however, have failed to confirm the findings of a pressor substance in the kidney tissue, so that this theory lacks confirmation.

As the adrenals secrete a substance which possesses a decided pressor action, efforts have been made to associate hypertension with increased secretion from this source. Vacquez in 1904 reported hyperplasia of the adrenals in patients with high blood-pressure, but others have failed to confirm these findings. This does not exclude the possibility of hyperfunction of the adrenals, and the various tests developed for the detection of minute quantities of adrenal secretion in the circulating blood have been used in order to determine the presence of hypersecretion in patients with high blood-pressure. The recent investigations of this subject have failed to demonstrate in patients with hypertension an increase of epinephrin in the circulating blood. While there is no proof that the adrenals play a rôle in permanent hypertension, it is quite possible that the fluctuations in pressure due to worry, excitement, etc., may be due to modications in their secretion, as Cannon and others have shown that the adrenals in a cat become more active under excitement. Time will show which, if any, of the foregoing theories explain permanent high blood-pressure. At present, however, the nature of the process is undetermined.

In going over my office records, I found one hundred cases of hypertension with fairly complete histories

1. Fischer, J.: Ueber die Beziehungen zwischen Blutdruck Steigerung und Nierenkrankung, Deutsch. Arch. f. klin. Med., 1913, cix, 460.

2. Janeway, T. C.: Nephritic Hypertension: Clinical and Experimental Studies, Am. Jour. Med. Sc., 1913, cxlv, 625.

of symptoms and renal findings. These were all ambulatory cases and so do not represent the terminal stages of this condition. With few exceptions, the patients have been seen several times, and in some instances have been followed for years. The urine examined was in almost every case a specimen passed at the office, making the test a rather more severe one than would have been the case if the early morning urine had been secured. As the urine was perfectly fresh, and had not been shaken by transportation, there was little probability of casts having been destroyed. In addition, in about one-third of the cases there were one or more analyses of a twenty-four-hour specimen.

The acetic acid and potassium ferrocyanid test was used for the detection of albumin. A drop from a centrifuged specimen was placed on a slide, and without cover-glass examined under low power for casts, and these reported present only when they were found with ease, one or more in each field. In this group of one hundred patients, sixty-four were males, thirty-six females. Forty-four were over 60 years of age, thirty-six between 50 and 60, seventeen between 40 and 50, two between 30 and 40, and one between 20 and 30. Thirty-three had a blood-pressure of 200 mm. or more, forty-five a pressure between 170 and 200, and twenty-two a pressure between 150 and 170. Albumin and casts were present in twenty-two (66.6 per cent.) of the cases with pressure of 200 or more, three showed casts without albumin, two albumin without casts, and in only six (18.2 per cent.) was the urine apparently normal. Forty-five patients had a blood-pressure between 170 and 200, twenty-one (46.6 per cent.) of these had albumin and casts, three casts only, one albumin only and twenty, or 44.4 per cent., showed a normal urine. Twenty-two patients with a pressure between 150 and 170 showed seven (31.8 per cent.) with albumin and casts, two with albumin only, three casts without albumin, and ten (44.4 per cent.) showed a normal urine.

Thirty-two of the one hundred cases have records of twenty-four-hour urine; 48 per cent. of these had 2,000 c.c. or more and 45 per cent. had 1,500 c.c. or less.

The frequency of renal involvement as determined by the urine, in this series, corresponds very closely with reports from other sources, and shows the great frequency of clinical renal changes in those patients with extreme hypertension. It is very probable that were the urinary examinations made with greater frequency, many of these patients with reported normal urines would show the presence of albumin and casts. Several cases in this list had repeated negative urinary findings, and then a specimen would be obtained which contained great numbers of short, narrow, finely granular casts. One of these patients with a blood-pressure of 200 has had during the past four years twenty urinary examinations, and has never shown numerous casts.

Briefly referring to the symptoms presented in these cases, seventeen of the patients were apparently entirely free from symptoms, referable to the high blood-pressure; fourteen of these were men, three women. The three female patients without symptoms had blood-pressures ranging from 165 to 185. Three of the men without symptoms had blood-pressures of 200 or more, one registering 220. Nocturnal polyuria was noted in sixty-five cases; all but two of these were males, and it is not improbable that prostatic irritability, rather than hypertension, was responsible in many instances for this disturbance. Angina pectoris was noted in twenty cases, headaches in ten, dizziness in eight, transitory aphasia or numbness in an extremity in eight, and marked eye symptoms were present in seven. Dyspnea was the most constant symptom, especially dyspnea on exertion.

The records show the cause of death in nineteen cases; this does not by any means include all of those who have died, as many of the patients have been lost track of. Broken compensation was responsible for death in twelve, angina in three, cerebral hemorrhage in three, and uremia in one.

The prognosis in high blood-pressure is of especial interest, as the laity has unfortunately become acquainted with the possible serious consequences associated with this condition. Cerebral hemorrhage, cardiac incompensation (including angina), and uremia are the most frequent causes of fatal termination. It may be, and usually is, exceedingly difficult in any given case to make a prognosis, on account of our inability to determine the strength of the arterial wall and the working power of the heart muscle. The functioning power of the kidney, and the dangers of a uremia, can be determined by the phenolsuphonephthalein test, an output within the first two hours of less than 25 per cent. of the phthalein furnishing evidence of grave renal involvement.

In obese patients, especially in women, a moderate increase in blood-pressure (from 160 to 170 mm.) may cause very decided dyspnea on exertion, or attacks of acute pulmonary edema. Many men, on the other hand, may be entirely free from symptoms with a blood-pressure of 200 mm. or more. The inherent strength of the heart muscle is an indeterminable factor and its ability to continue to perform an increased amount of work can be prognosticated in only a very general manner. The obese individual or person of sedentary habits is more liable to dyspnea from hypertension than those more athletically inclined. The patient who cannot, or will not, avoid physical or mental overtaxation is more liable to serious consequences than one who exercises care. The patient, however, with a pressure of 200 mm., or more, even with the greatest care, is liable at any moment to cerebral hemorrhage, or gradually developing cardiac incompensation; although a pressure of this degree is not necessarily inconsistent with several years of apparently good health. Transitory cerebral disturbances, as lapses of memory, aphasia, dizziness, or numbness in an extremity are an ominous symptom. Nocturnal attacks of acute pulmonary edema indicate that the endurance of the heart is being taxed to the limit, and the same holds true in patients who complain of dyspnea on moderate exertion. The appearance of moderate edema in the feet is of more grave significance in these cases than it would be in a patient with valvular trouble or a myocarditis, on account of the difficulty in restoring the cardiac compensation when its disturbance is due to high blood-pressure. The more marked the evidence of renal disturbance, the more grave the prognosis, on account of the actively progressive tendency of the hypertension, and the danger of uremia. Retinal changes, while of serious import, are not necessarily of such grave prognostic significance. Of extreme significance is the care the person is enabled to exercise, as freedom from physical or mental overexertion, protection from chilling, correction of habits, etc.

The patient, on the other hand, with a pressure of 170 mm. or less is not as a rule in any immediate danger, and with care in regard to diet, elimination, avoidance of overexertion and correction of habits may not only get along comfortably for many years, but may show a rather definite lowering of pressure. Patients with moderate degrees of hypertension are, I believe, much more liable to show a reduction in pressure as the result of

treatment than those with very high pressure. It is in this class of patients that we are especially liable to see marked fluctuation in pressure, as a rule due to some inexplainable factor.

The drug treatment of hypertension is of much less importance than attention to elimination, dietetics and general hygiene. Even with our imperfect knowledge of the etiology of this condition much can be done to delay its progress and to prolong life. An effort should be made in each instance to determine certain possible etiologic factors and attempt their correction. On account of the great frequency of renal involvement, increased elimination through the skin and bowel is important.

While we are not at all sure that protein waste has anything to do with the increased pressure, nevertheless it is advisable with our present knowledge to restrict the protein intake, the degree to which this is carried depending somewhat on the apparent extent of renal involvement. We probably all would fare better if we did not use alcohol, tobacco or coffee; it is their excessive use that is especially objectionable, in both the normal person and the one with increased blood-pressure. In order to safeguard the heart all forms of severe physical exertion should be avoided. Excitement and worry, as they no doubt increase the blood-pressure, are to be regulated as far as possible. Moderate systematic physical exertion, on the other hand, may be beneficial to the heart. Golf in moderation, and on a fairly level course, or systematic walking is safe and beneficial for the patient who can do them without the development of dyspnea. Shortness of breath is the best index of physical overtaxation.

In the drug treatment, when evidence of cardiac incompensation develops, digitalis should be used in exactly the same manner as in any other form of cardiac incompensation. Digitalis, when administered by mouth, does not raise blood-pressure, and by relieving cyanosis may actually lower it. There is no good evidence to show that the iodids are of any special value except in those cases in which syphilis plays a rôle. They do not modify the viscosity of the blood, correct the arterial changes or lower blood-pressure. The various vasodilators, as nitroglycerin and sodium nitrite, have a very limited field of usefulness; their effect on blood-pressure is exceedingly transitory, and with the growing belief that the hypertension is a compensatory measure we are less and less inclined to rely on this group of drugs. At least, we all agree that their effects are merely palliative, while the hygienic measures referred to are directed at the underlying causes, as we now understand them. These measures are largely directed toward enabling the patient to live comfortably in spite of his high blood-pressure. If, on the other hand, we expect to reduce the blood-pressure to normal, we are in the vast majority of cases doomed to disappointment.[3]

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3. In addition to the references already given, the following will be found of interest:

Ophüls, W.: Subacute and Chronic Nephritis as Found in One Thousand Unselected Autopsies, 1912, ix, 156.

Pearce, R.: Influence of Kidney Extracts and Serum of Animals With Renal Lesions on Blood-Pressure, Jour. Exper. Med., 1909, xi, 430.

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Ingier and Schmorl: Ueber den Adrenalingehalt der Nebennieren Deutsch. Arch. f. klin. Med., 1911, civ, 262.

O'Connor: Ueber den Adrenalingehalt des Blutes, Arch. f. Exper. Path. u. Pharmakol., 1912, lxvii, 195.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MILLER, WARFIELD AND STONE

DR. LOUIS M. WARFIELD, Milwaukee: In the last two years I have been impressed more and more with the fact that the diastolic pressure is probably the most important feature in blood-pressure estimation. We see many cases of high systolic pressure which have lasted for years, and all of our conclusions in regard to the blood-pressure have been made from the systolic pressure. My impression, from the few cases that I have studied, is that it is not the high constant systolic pressure which is most important, but the gradually ascending or the high diastolic pressure. The heart compensates for the high diastolic pressure in the high systolic pressure, and the high systolic pressure is really, it seems to me, purely an effort on the part of the heart to maintain the circulation in equilibrium. If the resistance gradually increases there will come a time when the heart is working at its maximum capacity, and a slight strain will break this compensation. A large number of patients with chronic nephritis die from decompensation. The deaths in high pressure are similar in a way to those following intracranial hypertension. The same type of coma is present and at necropsy edema of the brain is found. Not enough attention has been called to this similarity. Much clinical research, checked by necropsy, must be done before we arrive at definite conclusions.

Dr. Stone's conception of the heart load and overload is a most ingenious and interesting one. I have been checking over some of the results of my records in the light of this overload factor, and have been somewhat surprised to find that this overload factor in so many of the cases has proved to be absolutely correct. That it is not correct in all cases one would, of course, naturally expect, but it seems to me that it gives us at present, at any rate, something on which we can work, and which will lead in the future to more accurate knowledge of what constitutes the overload on the part of the myocardium, because, after all is said and done, the myocardium controls the circulation, and any method we may have of measuring the load of the myocardium will give us tremendous advantage in diagnosis and prognosis of heart disease.

It is difficult to measure the systolic pressure and the diastolic pressure in cases of irregular and intermittent hearts. There will be a very strong beat, and several weak beats, and probably a little stronger beat and then a very strong beat, and it is practically impossible in cases of decompensation to measure the systolic and diastolic pressure. This does not seem to me, however, to be of great importance at that particular time, because in patients who are suffering from cardiac decompensation the diagnosis depends really more on the patient as we see him than on the blood-pressure. It is after decompensation has been established, however, that it becomes so essential to be able to tell the patient whether or not his heart is going to carry on his circulation for any length of time.

Other things being equal, a high diastolic pressure is of much greater moment in the prognosis than a high systolic pressure alone, and, if we are going to take one side of the picture only, I believe that it is more important to take the diastolic pressure, which measures the peripheral resistance, or the resistance the heart has to overcome, the work lost, so to speak, before it can possibly carry on any circulation at all.

DR. HENRY L. ELSNER, Syracuse, N. Y.: The first class of patients to be considered are those with hypertension. Increased blood-pressure is in itself of little value, except as it teaches the clinician to keep a close eye on the patient, and this he must do tactfully.

When a patient presents himself with what might be called moderate hypertension, without any associated lesions, it is well for us to reassure him and send him on his way, with advice which will lead to right living, including moderate eating at all times.

A second class of patients consists of elderly people or those who are prematurely old who have hypertension with considerable hypertrophy of the heart, and yet, under these conditions, are often comparatively comfortable. They require reassurance and watching, never demand overmedication, and do not need continuous depressing autosuggestion.

The third class of cases includes patients with hypertension with positive renal changes but without marked symptoms. I have called these types of nephritis "non-albuminuric nephritis." The important fact to bear in mind is that it is not necessary in these cases to have albuminuria or casts and that these patients demand the closest care to prevent complications.

A fourth class of cases includes patients with very high blood-pressure, with positive renal symptoms, with marked arterial change, palpable thickened arteries and with a great many other symptoms. These patients demand our closest attention.

Of the iodids, or iodin preparations, and the nitrites, we are, I think, agreed that potassium iodid does the most, if any, good, but it ought to be given during a long period. The nitrites are really of no value, so far as the permanent effect on blood-pressure is concerned, but are of positive value for the relief of the sensory symptoms of arteriosclerosis, of hypertension, and especially in cases of stenocardia or angina pectoris and vascular spasm.

We should teach cardiac pathology based on the newer physiology. The graphic method leads to safer prognoses than we have ever made before. I have used the McKenzie polygraph with great satisfaction and have learned that in most cases of auricular disturbances the prognosis is fairly good, in spite of fluttering and delirium cordis. Ventricular disturbances are more serious.

Benjamin Rush made the statement in lectures delivered 125 years ago that "during his entire experience he had seen but one case of angina pectoris," and he says in parenthesis "I know of one other case which one of my colleagues in Philadelphia saw." When we consider the enormous number of cases of arteriosclerosis and stenocardia to-day we appreciate that the stress of modern living, competition, the use of machinery to expedite matters which invite haste, and wear and tear, with associated worry are the potent factors in producing degenerative processes.

DR. W. S. THAYER, Baltimore: The study of blood-pressure is more important, perhaps, from the standpoint of prognosis than from that of diagnosis. The estimation of the maximum pressure alone is not the whole story. I was much impressed by what Dr. Stone and Dr. Warfield said with regard to the importance of the study of the minimum pressure, which is now easy and simple as a result of recent studies. In the tests in the beginning of the study of blood-pressure, the estimation of minimum pressure was not a simple matter. I wonder what my feelings would have been about one or two examples that I have used for the last three or four years to the students, one of them a man who came to me eleven or twelve years ago, now aged about 54 years, with a pressure of between 235 and 250. It was elicited with a very narrow band. He was much worried; he had some symptoms of vertigo; he had no evidence of nephritis. I advised him to be moderate in his general ways. I did not give him much besides small doses of iodids. He became tired of coming to me, and stopped treatment. He feels better than he used to, but his pressure is the same. I wonder whether or not my prognosis made eleven years ago was correct.

I agree with what Dr. Stone said about the therapy of cases of hypertension. I should like to emphasize the occasional danger of the free use of nitrites in chronic nephritis. I have seen one or two instances in which I felt sure that uremia was brought on by their use. A few years ago a man was sent to the hospital with a pressure of 220 and evidences of a slow chronic nephritis. He was given large doses of the nitrites; his pressure fell suddenly to 150 or 160, and he became anuric and comatose. After a week of vigorous treatment he came out of his coma, his pressure rose to about 200 and he left the hospital feeling well. Nitrites in this marked hypertension chronic nephritis should always be used with care and confined to the relief of headaches and other subjective symptoms.

DR. H. S. MUNRO, Omaha, Neb.: If we study the problem of the composite individual we shall find that we have a syndrome in which we must consider the gastro-intestinal derangements leading to auto-intoxication—deficient elimination, with its resulting cardiovascular pathology, and the nervous symptoms which would logically accompany this syndrome. Then if we go down into the study of the psychology of the individual patient, we shall find that the diseased condition presenting itself is the end-product of all that has constituted the life of the patient, such as habits, quantity and quality of food, and vocation and other environmental factors contributing to the cause of the pathology found to exist. If we will approach the relief of these special pathologic entities in an indirect way, seeking to remove the cause of which they are the logical consequence, we shall do much more for the welfare of the patient than if we devote too much attention directly to the treatment of the special pathology. These conditions are often the result of abnormal social conditions, of misadaptation socially and economically. Quite frequently this class of patients has sought relief, and the nervous element attracted the most attention. I find always that high blood-pressure and cardiovascular lesions are associated with deficient elimination, autotoxemia and the abnormal habits, psychic and physical, corresponding to these end-results.

It is simply a question of inducing the patient to adopt healthful habits of life, after first administering a course of disintoxication treatment, in which fasting, exercise and psychotherapeutic measures have been my sole reliance. Rest in bed and overfeeding are never indicated.

DR. J. M. ANDERS, Philadelphia: Dr. Miller well said that the subject of the clinical relation of hypertension has received a large share of professional attention recently and yet, because of the many unsolved problems connected with it, requires further study. He referred to an interesting and important class of cases in which there is no definite etiology and in which the cases are unassociated with any symptoms referable to the heart, the arteries or the kidneys. Because of the fact that a patient with simple hypertension presents no symptoms, the condition has been termed physiologic by certain English writers, notably Allbut. My own belief is, however, that the biologic chemistry of the future, together with further clinical study, will show that this class of cases will undergo a constant diminution. For example, it is quite evident that many cases of simple hypertension formerly considered physiologic are associated with latent kidney conditions; and again, others are associated or dependent on neurasthenic states. While certain authors regard these cases as having no assignable etiology and no symptomatology, let us not forget that if we study them with sufficient care we shall sometimes at least find a cause, or a combination of causes, that will adequately explain the hypertension. In my experience most of these cases occur in persons who are addicted to the immoderate use of alcohol or tobacco and are subjected to more or less nerve-strain; and I have felt repeatedly that this alcoholism and nicotinism, as well as nerve-strain, might explain the increased peripheral condition which always leads to hypertension, and thus furnish a basis for rational treatment. Again, constant hypertension in many cases, if they be watched long enough, will be found to lead to arteriosclerosis. This theory of Scheffer, Klotz and others, in explanation of arteriosclerosis is now accepted by many modern writers. Therefore, these cases of so-called simple hypertension constitute an important group, clinically considered. We have not been sufficiently impressed with the importance of recognizing the nervous element in the causation of many of these cases of hypertension, and particularly of fluctuating hypertension, and that in the treatment the most important item is absolute rest in bed for a period of several weeks at least, rather liberal feeding, massage and the use of the nitrites to combat certain sensory symptoms.

DR. THOMAS MCCRAE, Philadelphia: Regarding the opinion that in many cases of patients with high blood-pressure nephritis is latent, that is, without signs in the urine or anything to suggest clinical nephritis, it is important to consider what we mean by nephritis. If we say that a patient with high blood-pressure, whose urine is absolutely normal, has latent nephritis, we are losing all definite meaning of the term nephritis used clinically. A patient may have nephritis and go several days without urinary signs, but if he has a pressure of 225, is in bed for a month, and we examine all the urine, do the functional test two or three times and find that he is functionally normal, and then say that because that man has high blood-pressure he has latent nephritis, it seems to me that our diagnosis is open to question. You may quote pathologic figures which show a large percentage of nephritis. But what is nephritis on the necropsy table? You may ask the pathologist to draw the lines exactly, but the better pathologist he is, the more he hesitates to draw these lines. We must keep in mind that in persons over 50 the vast majority of kidneys show changes which one man may interpret as nephritis, and another may regard as the changes which occur with the advance of years. In correlating figures we must know what each particular pathologist terms nephritis. Where do the cases belong which occur in women about the time of the menopause, who have high blood-pressure for a year or two years, which later falls to normal, the urine being perfectly normal? Is there any suspicion of nephritis in some of these cases? I think not. It is a question whether or not we are justified in considering that high blood-pressure always means nephritis, in the absence of other definite findings.

DR. W. W. TOMPKINS, Charleston, W. Va.: We are likely to emphasize the importance of symptoms by calling them too strongly to the attention of the patient.

Dr. Miller stated, if I understood him correctly, that digitalis given by the mouth did not increase the blood-pressure. I believe it has a contrary effect; that digitalis given by the mouth will increase the pressure as well as when given hypodermatically.

DR. WALTER L. BIERRING, Des Moines, Iowa: It seems to me that there is much importance to be attached to the reference made to the nervous aspects of hypertension, particularly those attacks with lapse of memory, fainting attacks and very slight apoplectic seizures. I do not know just what Dr. Miller's explanation is for these. It seems that these attacks might be explained best by assuming the existence of vascular crises, intermittent closures of the vessels, as first described by Paul. It has appeared in the few instances in which subsequent examinations were possible that these particular nervous phenomena or cerebral arterial disturbances were most marked in cases in which there was an underlying nephritic disturbance or nephritic changes in rather definite arteriosclerosis or other arterial changes.

DR. A. C. GRIFFITH, Kansas City, Mo.: I am inclined to agree with those who have spoken of hypertension as due to some nervous phenomenon. In one case of hypertension the systolic pressure was 260 and the diastolic pressure 180. The pressure was reduced by rest, but no iodids of any description seemed to have any effect on the pressure. The patient, a woman about 60 years of age, was extremely nervous. The systolic pressure ran along from 260 down to 200 for two years. There was no change in the arteries, and no change in the kidney that could be detected by frequent examination of the urine. The functional activity of the kidneys was not changed at all by this hypertension; no dyspnea was particularly noticeable on exertion, and we could attribute the hypertension to nothing else than a neurasthenic condition.

DR. JOSEPH L. MILLER, Chicago: The subject which I discussed was permanent hypertension. I believe that nervous conditions are responsible for transitory disturbances of the blood-pressure, and that these disturbances of the blood-pressure may be of very high degree; but I believe that nervous influences are not commonly responsible for permanent high blood-pressure. I believe fully that pathologists disagree as to what constitutes nephritis, and Dr. McCrae made a very suggestive statement when he said that the patient should be kept under observation and the urine examined over a long period of time. I believe that, if we examine the urine of these patients with high blood-pressure daily, perhaps over a long period of time, and they show no casts, as a rule, we may be surprised to detect occasionally showers of casts. He also referred to his functional kidney tests in these cases. I am of the belief that, if we follow one of these patients with high blood-pressure and without casts or albumin through a long period of time, with daily examinations of the urine, and make repeated functional kidney tests, we shall find after all that the majority of them do show evidence of kidney incompetence, but I believe that as time goes by we are going to ascribe more and more of our high blood-pressure conditions to renal changes.

I have tried, repeatedly, taking the blood-pressure of patients several times a day for several days before digitalis was administered, then taking it several times a day for days when the patients were under the influence of digitalis, and I failed to find any material difference in the blood-pressure during these two periods of time. Furthermore, Cushney, working in conjunction with McKenzie, also maintains that digitalis administered by the mouth, at least in ordinary doses, does not affect the blood-pressure.

CANCER OF THE UTERUS

SOME POINTS TO BE EMPHASIZED IN THE EARLY DIAGNOSIS *

RUFUS B. HALL, M.D.
CINCINNATI

It is desirable to consider the diagnosis of cancer involving the cervix, and that involving the body of the uterus, separately. Therefore, I shall take up first the early symptoms of the disease involving the cervix, and later those involving the body of the uterus.

Cancer of the uterus has received more attention from gynecologists than any other disease peculiar to women. One must be convinced by study of the literature that the large part of this energy in the past has been directed toward the perfection of operative technic rather than to the more importnat problem of early diagnosis. The technic of the operation by the vaginal or abdominal route, or by a combination of both, has been perfected until little more is to be desired along that line. But what has the profession accomplished in the last decade in early diagnosis of cancer, that has benefited these patients? Scarcely anything at all.

While the men engaged in this special work have made advances in the early diagnosis of the disease, it does not benefit the great majority of these unfortunate patients, because we have not taught the family physician, who sees these patients first, to make the diagnosis in time for early operation. That many patients come to operation too late to promise a reasonable hope of cure, every operator of experience must admit. If an early diagnosis is to be made, it must be through the education of the laity by the family physician. From past experience I am convinced that the laity will not be educated until we can in some way bring home to the family physician his great responsibility. The propaganda for education of the family physician as well as the laity, inaugurated by the American Gynecological Association at its annual meeting in 1912, and more completely elaborated at the Washington meeting in 1913, should be commended and encouraged with enthusiasm by the entire profession.

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

I have little new to offer but would emphasize some of the early symptoms of the disease that are so often neglected.

The importance of careful supervision over women regarding their sexual organs during the cancer period of life, which could be arbitrarily stated from 37 to 47 years, cannot be overestimated. I do not wish to be understood as saying that we may not encounter the disease in patients much younger or much older, but such cases are not nearly so often seen. The most trivial complaint, let it be discomfort in the pelvis or back, associated with a little watery discharge or leukorrheal discharge, or pruritus, during this period, should be investigated at once. The patient should not be permitted to go four or six months, or even a year, without an examination to determine the cause of these symptoms, as most of these patients are permitted to do now, before their physician examines them. During the past five years, for every case of cancer of the cervix coming under my observation early enough for an operation that justified the removal of the uterus, sixteen others came too late. For the five years just preceding that period, the ratio was one to twenty-one. In cancer of the body of the uterus the ratio was 1:4. The vast majority had consulted their physician several times, seeking advice for symptoms that were directly associated with the pelvic organs, such as pain in the back, irritable bladder, vaginal discharge or a little bleeding between the periods, and were treated expectantly without a vaginal examination being made or even suggested.

It is true that many of these patients did not apply to their physician for a vaginal examination but consulted him for advice. It is the family physician's duty however, to investigate every case in which the patient gives symptoms referable to the sexual organs during the cancer period of life, just as carefully as though he believed she had cancer, until he proves that she has or has not. When every physician realizes how important it is to the patient for him to do so, we have the key to the situation. We shall then have a great saving of suffering and prolongation of life for this unfortunate class of women. I am convinced that if these women were carefully examined by the family physician early, he would have little or no difficulty in convincing himself that the patient had cancer or that there was something out of the usual in her condition, and he would seek a consultation. Early diagnosis is of great importance to the family physician, in addition to the great good rendered his patient, because these patients and their friends invariably criticize his management of the case if he has delayed making an examination or has neglected to make one when they find that the disease has advanced beyond the operative stage. This criticism would be avoided if he investigated the case and made the necessary examination as it should be made at once, when the patient first applied for relief.

In the early diagnosis of cancer of the cervix, one should not overlook the fact that trauma due to childbirth plays an important rôle in the etiology of the disease. More than 98 per cent. of cases of cancer of the cervix occur in women who have borne children. Heredity does not appear to have as much bearing on the disease as it apparently does in carcinoma of the breast. Less than 10 per cent. of all cases of cancer of the cervix give a history of any member in the family having had cancer in any part of the body. A clinical record of every case examined by me is kept and filed. It is from these records, extending over a period of twenty-five years, that these deductions are made.

The early symptoms of cancer of the cervix, which I have observed in the order of their importance, are: (1) a watery discharge; (2) an irritable bladder; (3) a little irregular bleeding, and (4) a disagreeable odor. In reference to the watery discharge, I do not mean the ordinary leukorrheal discharge that women frequently complain of, but a watery discharge not unlike beef brine in its appearance. It may not be very profuse, but enough to stain the linen brownish. It irritates the vulva. It is more or less constant for a varying period of from five or six weeks to three or four months, before the patient considers herself ill. This is a most important symptom. If the history of the patient is carefully taken at the time, most of these patients soon after the watery discharge is noticed will give a history of irritable bladder; that is, they say that they must empty the bladder more frequently than before. They are relieved after the bladder is empty and they have little or no tenesmus. Where the patient could formerly go from four to six hours without discomfort, she now has to empty the bladder every two or three hours, and when she is unable to do this she is in distress. This is a most valuable early symptom and should be carefully considered. There is also associated with the watery discharge a vulvar pruritus in a large number of cases. Pruritus not associated with glycosuria during the cancer period of life should be carefully and immediately investigated to determine the exact cause.

The irregular bleeding amounting merely to a spot on the clothing between the periods is not an early sign of the disease, but it is one that should be immediately investigated. If the history of the case were taken at the time that the first bleeding is observed, there would be no difficulty in establishing the diagnosis of cancer, and that it has existed for a period of three or four months, or even longer. In almost every case it would be found that the symptoms enumerated had been present and observed by the patient for many weeks, in some instances for months, before the first bleeding occurred. Bleeding is not an early symptom. Many writers insist that one of the early symptoms of cancer of the cervix is irregular bleeding. It may be an early prominent symptom in some cases, but almost all these patients have other well-marked symptoms before the first bleeding is observed. The difficulty is to get the profession to place the proper importance on the apparently trivial symptoms. The disagreeable odor so much spoken of by most writers is a late symptom of the disease. This odor is from decomposition, a breaking down of the tissues. Necrosis must occur before there is the disagreeable odor for which so many doctors wait before they venture the opinion that the case is one of cancer.

Hemorrhage and pain come late in the disease. When the patient complains of severe pain and has had several hemorrhages, it will be found that she has passed the time when an operation for extirpation of the uterus would be of much permanent benefit.

One must differentiate cancer of the cervix early in its history from (1) erosion, (2) laceration, when the cervix is inflamed, (3) cystic degeneration, (4) tuberculous ulcer and (5) chancre. The diagnosis early is much easier than is generally supposed. When cancer is suspected from the history of the case, a careful vaginal examination is made by touch. If malignant disease is present, a small nodule is to be found. It is usually in the angle of a previous laceration and it can be distinctly felt as a little lump under the examining finger, entirely different to the touch from any other portion of the cervix.

In erosion, the entire cervix in every place feels exactly the same under the examining finger. Every portion of the cervix feels alike in a lacerated, inflamed cervix. There is no hard point the size of a bean or larger, and the entire ulcerated cervix feels alike. With a speculum the cancer appears different on inspection from the other tissues around. It bleeds more easily when touched with a probe. In erosion the whole cervix bleeds easily on touch and there is no hard point. In laceration every portion is alike. In cystic degeneration, under the examining finger one feels hard, round, small tumors, seldom one, usually several. On viewing the parts through a speculum, one finds that the cervix has the same appearance over the entire portion. There is no redness over these little hard bodies. When one is punctured by the knife, with the discharge of mucus the diagnosis is complete. It is hardly necessary to say that the examination would not be complete in any doubtful case without a microscopic examination of a portion of the diseased tissue.

Tuberculous ulcer is so rare, as compared with cancer, that the presumption would be in favor of cancer. The one case which I observed occurred in a patient who was far advanced in general tuberculosis. In that case there was no difficulty in deciding that the case was not one of cancer of the cervix.

From chancre, which is also comparatively rare, there should not be much difficulty in making a correct diagnosis. The sensation by touch is different from every other condition. The deep-seated ulceration, the hardened edge, with sharp, well-defined border, and the signs of syphilis in other parts of the body, should make the differential diagnosis in most cases exceedingly easy.

The early diagnosis of malignant disease of the body of the uterus is also very much neglected by the profession at large. Most cases are permitted to drift under palliative measures for a year, before cancer is seriously considered by the physician. The disease is so insidious in its onset, that if the first symptoms are observed within a year or two after the cessation of menstruation, the patient naturally attributes her symptoms to the menopause, and usually delays consulting her physician until the disease is far advanced. This form of cancer may and does occur in the maiden as well as in the woman who has borne children, which is not true in cancer of the cervix.

The disease is comparatively rare before the menopause. The majority of the patients whom I have seen were past 50 years of age. The earliest symptoms observed in these patients, by careful tabulation and review of their clinical histories, have been a watery discharge with a little bleeding (not a hemorrhage), at irregular periods, coming on several years after the establishment of the menopause. Associated with this discharge, every one of these patients complained of pruritus. Nearly every patient applied to her physician for relief from that annoying symptom, not suspecting that the discharge had any relation whatever to the pruritus. The discharge was not great enough to alarm the patient but enough to leave spots on the linen. As the disease progressed and after it had existed for from six months to a year, the bleeding, which heretofore had been just a spot on rare occasions, became more frequent and a little more in quantity, associated with a discomfort almost amounting to a pain in the back, or pain in the region of the uterus, or both. The pain comes late in the disease when the uterus is enlarged by the new growth, and the uterine muscle makes an effort to rid itself of the foreign body.

The diagnosis of malignant disease of the body of the uterus early in its history is not at all difficult, and there is no excuse whatever for this unseemly delay. With the clinical history, the physician should proceed to the examination. He will find that the uterus is enlarged, freely movable, and more sensitive than normal, with no perceptible disease of the cervix. If the disease is far advanced, the uterus may be greatly enlarged. A probe passed gently into it shows that the organ measures 3 inches or more in depth. The slightest manipulation of the probe will cause a free discharge of bright red blood. If a positive diagnosis cannot be made at this examination, it is the physician's duty to give the patient an anesthetic and explore the uterus thoroughly. He should curet it thoroughly and have a careful microscopic examination made of the scrapings. If this procedure is done, a diagnosis in a majority of cases would be made at the first curetting. If, however, a positive diagnosis of cancer cannot be made and the patient continues to bleed, in the course of six or eight weeks she should again be anesthetized and the uterus thoroughly explored and curetted, and a microscopic examination of the specimen made. Only on a few occasions have I been compelled to do a second curretting to confirm or disprove the diagnosis of cancer, when the clinical history and the symptoms justified that suspicion.

THEORETICAL AND PRACTICAL FOUNDATIONS OF A RADICAL OPERATION FOR CARCINOMA OF THE CERVIX UTERI *

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The cause of carcinoma is at present unknown. Our knowledge of carcinoma in the human being is built up on clinical and pathologic observations. These have led to certain conclusions as to the growth of carcinoma, which may be summed up approximately as follows:

Carcinoma in its beginning is a purely local disease of a circumscribed group of epithelial cells. The tumor invades the host in two ways: first, by contiguity, and second, by the establishment of colonies or metastases, which are endowed with the same activities as the primary tumor.

The contiguous growth invades lymph-channels early and regularly, the blood circulation rather incidentally, irregularly and, we may say, less frequently. The primary tumor is subject to changes in two ways: first, degeneration, and second, infection. The metastases established especially along the lymphatic system are subject to the same changes, necrosis taking place in them and infection reaching them through the same or similar channels through which originally the carcinoma has reached them.

In the beginning, when there is no carcinoma in the patient's body except the original focus, a piece of tissue which comprises all of this tumor is a simple block of tissue by the removal of which, theoretically at least, the entire carcinoma can be eliminated. As soon as colonies have become established, a block of tissue which is to include the entire carcinoma must include besides the original tumor all the metastases or colonies. In order to excise such a block, we ought to have full and com-

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

plete knowledge of all the metastases present in a given case. With our present methods this knowledge is absolutely unattainable. Therefore the outlines of the block of tissue which we have removed in carcinoma operations, and which we have hoped or intended to represent all the carcinomatous tissue, has been dictated by guesses as to the extent of carcinoma in the individual case rather than by exact knowledge.

This block of tissue, which we may call the "carcinomatous block," is limited in one stage of our surgery of carcinoma of the cervix by the cervix itself, in a later stage by the outlines of the uterus and for the most advanced surgeon by considerably wider boundaries. We have enlarged the carcinomatous block in all carcinoma operations. The enlargement of the carcinomatous block in carcinoma of the cervix has been justified no less by the investigation of the specimens removed by the operation than by the improved remote results. It therefore has now a pathologic and statistical basis which was entirely lacking in 1895 when I first proposed this operation. But even to-day the delimitation of the large block is an arbitrary matter, and it is one of the fundamental weaknesses of all of our carcinoma operations that it must remain arbitrary so long as we have no means of preoperative diagnosis of the number and extent of the metastases, and therefore of the proper size of the carcinomatous block.

We consider the metastases of carcinoma to be derivatives of the original carcinoma, cellular constituents of which we believe to have been carried through the lymphatic channels to the lymphatic lymph-nodes. We also have concluded that it is necessary to include in the carcinomatous block all the lymph-vessels between the original focus and the metastatic focus in the lymph-node. We have been forced to this conclusion by the uncertainty as to what might happen if we cut across a lymph-vessel between the primary and the secondary focus. Two risks inherent to such operating have to be considered: first, the risk of leaving behind carcinoma metastases in a lymph-vessel which would lead to false recurrence, and, secondly, the risk of cutting through a lymph-vessel at a point where carcinoma is in its lumen and thereby spreading carcinoma in the wound, producing implantation recurrence. On the other hand we must not forget that these theoretical considerations are not any too well founded on actual observations. It is no exaggeration to say that hundreds of thousands of sections have been examined since 1895 by others as well as by myself. But in spite of this immense amount of material it has hardly ever been possible actually to demonstrate carcinoma in transit from the original to the secondary focus. Carcinoma in lymph channels in the immediate neighborhood of the primary focus, or in the capsule or near the capsule of lymph-nodes, has been demonstrated often by myself and others. But observations of carcinoma in transit at a distance from both the primary focus and the regionary lymph-nodes, say halfway between them in the broad ligament, are so rare as to be practically unknown. This is a point which deserves more consideration than has been accorded it so far. I am well aware, however, of the fact that it is practically impossible to recognize one or two isolated cancer cells in a lymph-vessel, and that therein may lie the reason why there are no extensive observations of carcinoma in transit.

In spite of this lack of actual observations of carcinoma in transit, it is absolutely logical to include in the carcinoma block not only the primary focus and the preferential seats of the metastases, but all of the intervening tissue as well; in other words, a prerequisite of a thorough carcinoma operation is that of continuous instead of non-continuous dissection.

The improvement in the results of operations for carcinoma in any part of the body can easily be shown to depend largely on this method of continuous, rather than discontinuous, dissection. Take, for instance, carcinoma of the breast and compare with it carcinoma of the vulva. The dissection of the carcinoma block in carcinoma of the breast is the best example of continuous dissection and the results are very fair. The operation for carcinoma of the vulva to this day is a shocking example of discontinuous dissection and its results are correspondingly miserable. In carcinoma of the breast every surgeon emphasizes the necessity of removing all of the tissue in one block. In carcinoma of the vulva the vulvar tumor is removed in one block, and, if the operator tries at all to be radical, the lymph-nodes are removed in one or two more blocks, so that altogether we get two or three blocks with intervening tissue left standing. It is not rational and the results are poor. As other examples of discontinuous dissection and poor results I may add the operations for carcinoma of the face, of the tongue, of the penis, of carcinoma of the extremities, especially Roentgen-ray carcinomas of the hands, carcinomas of the stomach, carcinoma of the gall-bladder. In all these, the operations performed usually are discontinuous dissections and in all the results are highly unsatisfactory. Improvement in results depends, therefore, not only on enlargement of the carcinomatous block, but fully as much on the method of continuous dissection.

It is evident that there are good reasons why the enlargement of the carcinomatous block and the continuous dissection are not available in all carcinomas. For instance, in carcinoma of the breast the carcinoma block, as bounded to-day and large as it is, is too small for many cases. Suffice it to mention merely the invasion of the chest wall, pleura, mediastinal lymph-nodes. On the other hand, the reasons for the discontinuous dissection of the primary tumor and the lymph-nodes in carcinoma of the face are also perfectly evident. Let us suppose a case of a carcinoma of the cheek. To make a continuous dissection, it would be necessary to remove the whole thickness of the cheek and the jaw and all the soft parts around the tumor in order to obtain one continuous block of tissue, including the primary tumor and the lymph-nodes of the parotid, under the jaw, in the neck, etc. Aside from the risks of such an interference, it is abhorrent to our feelings to propose such mutilation, the result of which would be almost worse than death.

In comparison with such an operation on the face the operation for carcinoma of the breast is far less mutilating even though the bulk of the tissue removed exceeds many times that removed by continuous dissection of a large carcinomatous block of the face. Also the risks attached are quite different. The operation for carcinoma of the breast as carried out to-day has very slight inherent risk. The removal of the soft parts is practically free from risk and the success of such operations is limited only by the accessory risks produced by the anesthetic, infection, air aspiration, etc. The moment we decide to increase the chances of radical cure by enlargement of the carcinomatous block, and remove, for instance, the whole thickness of the chest wall (as we often do in operations for recurrent carcinoma of the breast), the inherent risks become enormously greater, as well as the accessory risks. Collapse of the lung, displacement of the heart, difficult technic of closure of the wound have then become inherent risks of the operation.

Longer anesthesia and restricted function of the lungs are some of the increased accessory risks. The fact that continuous dissection is carried out might improve the remote results, but the gain might easily be offset, in part or entirely, by the increased inherent and accessory risks.

The accessory risks from anesthetic or infection carried in from the outside are the same in carcinoma of the cervix as in other carcinoma operations. But the gravest accessory risk in carcinoma of the cervix is that of sepsis from the infected primary tumor. I am not speaking of the infection which might be carried into the peritoneum by dragging the infected cervix through the abdominal cavity. Proper technic has reduced this risk to a minimum. But there are two other ways in which infection can gain access to the peritoneum and the pelvic connective tissue in the course of the operation. One is the much-dreaded tearing of the cervix, complete or incomplete, and the other is the infection of the field from crumbling lymph-nodes, which in addition to the carcinoma have been loaded with virulent germs from the primary focus. There is very little doubt in my mind (though I have not been able to confirm this suspicion by actual microscopic observations) that virulent germs may lurk not only in suppurating lymph-nodes, but in lymph-vessels in their neighborhood as well. Even if it is possible to clean up a primary carcinoma of the cervix fairly thoroughly before the operation, I can not see how this danger of infection from infected lymph-nodes or lymph-vessels can be deviated.

In carcinoma of the cervix the enlargement of the block to the limits which I indicated in 1895 has improved the remote results wonderfully. But the improvement was at the cost of increased inherent risks from hemorrhage, injury to ureters and establishment of large wounds in the connective tissue. At the same time it has not been possible to make the dissection in carcinoma of the cervix a truly continuous one. Though we attempt to remove the lymph-nodes and the pelvic connective tissue in one block with ligaments, uterus, tubes, ovaries and vagina, the small amount of tissue which surrounds the glands often renders this attempt abortive. In addition thereto, the dissection of the ureters out of the broad ligaments unavoidably makes a breach in the principle of continuous dissection. And this constitutes another weakness of the operation for carcinoma of the cervix.

This weak point could be eliminated if we could make up our minds to force the continuous dissection by including the ureters in the carcinomatous block and resecting them every time. The reason that we do not do so lies in the simple fact that there is a limit of tolerance, I am tempted to say, of the operator as well as of the patient. The operation for carcinoma of the cervix, as it should be carried out, is the most extensive operation I know of in surgery. I am sure that the carcinomatous block in this operation, as I carry it out, is as large as anybody has ever made it, but it is not so large as I should like to make it. In fact, I am considering its enlargement at least in the direction of the pelvic diaphragm and the paracolpium. This may mean greater demands on the tolerance of the patient, and it would be highly desirable to have some means of determining beforehand the limits of this tolerance in individual cases. But so far we have no reliable means of determination, not even in a negative way. It is surprising how sometimes emaciated, anemic, cachectic women stand the most extensive operations, while others who seem in comparative good health will succumb. Neither blood-counts nor urinary examinations, neither examination of the circulatory system nor any other methods that I know of, are reliable.

To-day the surgeon who operates for carcinoma of the cervix in the modern way is well aware of the fact that the size of the carcinomatous block and the method of continuous dissection on one side tend to improve his remote results to a degree never before attained but he is also aware that the inherent and accessory risks of such operations in the absence of reliable methods of preliminary determination of the limit of endurance are bound to increase his operative mortality. Operative mortality and remote results therefore have the tendency to show an inverted ratio.

The better the surgeon's technic the greater things he may dare. The world, and even parts of the medical world, not to mention the patients and their families, are utterly unaware of the difficulties encompassing such work. It requires sometimes a strong sense of surgical duty to persist in this most difficult and risky field. No man with any conscience will undertake such operations without extensive experience in abdominal surgery. But the prize is worth striving for. To this moment there is only one cure for carcinoma of the cervix—the operation; and my patients operated on from five to fifteen years ago and well to-day are the best witnesses to this fact. The statistics of all modern operators show a rich harvest of patients surviving for similar periods. Let me repeat: there is no other treatment of carcinoma that can show such results. Therefore it is to-day wrong and unscientific to withhold the chance of operation from any patient with carcinoma of the cervix or to waste valuable time with any treatment except operation, and this in spite of all risks which the operation involves.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HALL AND RIES

DR. J. H. CARSTENS, Detroit: One woman out of eight dies of cancer to-day. Think of that! Dr. Hall's paper is opportune and essential. I have been trying to do something in that direction. We must talk cancer day in and day out. You cannot impress the people, you cannot impress the profession unless you talk and talk and talk and show them the fearful results. They are careless, they do not think about it. I have been advocating for several years that we set aside one day in the year as cancer day; that all the newspapers write about cancer, that all the ministers preach about cancer and that all the lay press write and print "Cancer, cancer, cancer," so that the people will be aroused and the profession will be aroused and these cases will have early attention. Cancer starts locally microscopic and then is the size of a mustard seed. Found early it can be removed and that is the end of it; but you must look for it. The medical profession neglects these cases. In Michigan I tried for a number of years to get the state board of health to issue a cancer circular. This was finally done and a circular on the symptoms and how to cure cancer was sent to all the physicians and distributed among the people. Now they have started this work at the meeting in Washington. I went to the lay editors and told them about the fearful mortality from cancer and asked them to write and publish the matter and had them interview a dozen doctors, and they have written a number of articles and have stirred up the people about the cancer question so that they will be a little more vigilant. The point I have made is that if a woman has a slight discharge there is something wrong with her pelvic organs and she ought to give them attention. Some doctors are careless. I tell these women that if their doctor says, "Madam, I am going to examine you," and dissects away a little piece of tissue for examination he is a good doctor. That is the doctrine we must preach in season and out of season.

DR. WALTER B. DORSETT, St. Louis: I wish to say a word on the importance of making an early diagnosis of cancer of the body of the uterus. Dr. Hall spoke of the use of the curet by the family physician for the purpose of getting scrapings to make an examination. This I do not approve of at all. I believe that a physician should be ready to operate when he has done his curettement, not stir up matters to-day and operate next week. I am impressed with the importance of this matter from the knowledge of three cases. In one a physician attempted to curet with a sharp curet for the purpose of making diagnosis, and he punctured the uterus. The patient died. In another case I myself punctured the uterus with a curet, thinking that possibly I had a retained placenta to deal with. I immediately opened the abdomen, removed the uterus and saved the patient. Other cases of this kind have been mentioned. I believe that the curet is an instrument which can be used for diagnostic purposes under proper conditions, but whenever it is used the physician should be ready to do a major operation as soon as he has finished the curettement, if any accident should occur. Even if nothing has occurred, the operation should be done in a short time afterward.

DR. G. BETTON MASSEY, Philadelphia: I wish to emphasize the importance of what was said by Dr. Dorsett about the danger involved in making a diagnosis by the curet. That practice will probably be continued until surgeons act fairly on their own convictions of the parasitic nature of cancer. As was stated the other day by Willy Meyer in a cancer discussion in New York, pathologists still deny the parasitic nature of cancer, but surgeons regard the disease as parasitic. I wish to emphasize strongly my own conviction that if they believe in the parasitic nature of cancer they are acting wrongly to curet these growths. No cancer should be wounded until preparations are made for immediate destruction or removal. I submit that until the parasitic nature of cancer is disproved, the history of cancer operations reflected here, particularly in the pelvis, compels us to assume that it is parasitic, and to adopt such precautions in operation that these parasites shall not be transferred living to the cut edges of the wound.

DR. WILLIAM J. MAYO, Rochester, Minn.: I was particularly interested in what Dr. Ries said in regard to the foundation for an operation for cancer and the reason for doing a block dissection. I agree with him that up to the present time the experimental work on cancer in animals and plants has not been of great value as an aid to clinical diagnosis or to treatment, but I do believe that this work will finally lead to the solution of the cancer problem. We cannot experiment on the living human being. If those of you who are interested will go to the other side of this floor, you will see an exhibition of plant cancer, which to my mind is the greatest piece of research work on cancer which has ever been demonstrated. This work has been done by Dr. Edwin Smith of the Department of Agriculture, Washington. Dr. Smith has been able to produce, by a species of bacteria, cancer in plants which agrees in many essentials with what we know of cancer in the human being and of cancer in the animal which has been produced experimentally. These bacteria produce cancer, but only when there is traumatism or irritation at the point of introduction. He has shown that these bacteria stimulate growth in the plant; they respond by throwing out an unlimited number of embryonic cells, that is, a true cancer. In plant cancer the bacteria die and the endotoxins in their bodies stimulate the plant cell-nuclei, which take on a fresh growth, and this process goes on indefinitely. Dr. Smith's splendid work, taken in connection with Auer's work on cancer in chicken, gives an interesting picture. In his experimental work, Auer tried to produce the disease as we see it in the human being, but he could only cause tumor at the point of injection. He then added to the injection the skeleton of diatoms, which produced mechanical irritation of the tissues. He was then able to demonstrate multiple cancer lesions. No case of cancer of the skin has been reported that did not develop on a previous lesion. It must be the same in the internal surfaces of the body. It is to be found in the mouths of persons, both male and female, who chew the betel nut, and on the lip of the pipe smoker. It is prevalent in natives of Kurdistan on the skin of the abdomen, the result of heat irritation from the charcoal warmer they use. We have further examples in ulcer and cancer of the stomach, gall-stones and cancer of the gall-bladder, myomas of the uterus and cancer of the corpus uteri. It is said that the savage people do not suffer from cancer, which is probably not true, since their economic necessities make cancer the means of speedy death.

DR. JOHN B. DEAVER, Philadelphia: I believe that in a certain proportion of cases of cancer of the fundus the pathologist in examining the scrapings, like the surgeon, makes mistakes in his interpretation. In those cases of uterine bleeding in which adnexal disease and gross disease of the uterus can be excluded, but in which there is question of doubt, I make a hysterotomy, and in this wise am sure of the condition of the interior of the uterus.

DR. C. O. THIENHAUS, Milwaukee, Wis.: It cannot be too strongly emphasized that a microscopic examination is the authentic proof of malignancy or non-malignancy. When the general practitioner sends a specimen of diseased tissue to the pathologic anatomist for microscopic examination he should know how to excise that specimen. He should not merely snip off a little piece of tissue, but should also see to it that the specimen for examination contains that part of the tumor or ulcer in which the normal tissue transgresses into the diseased tissue.

In regard to removal of glands in cases of cancer I should like to say this: Nobody removes a cancer of the breast without cleaning out the lymph-nodes in the axilla. Nobody removes a cancer of the tongue without paying careful attention to the removal of the lymph-nodes in question; nobody operates for cancer of the anus or clitoris without cleaning out the inguinal region. In the same manner in cases of cancer of the uterus the glands in the abdomen must be removed, and the removal of those glands has given the Ries-Wertheim operation the high standing and preference above all other operations for cancer of the uterus. Of course, often lymph-nodes may be swollen and still not be infected by cancer. This we find in cases of cancer of the stomach. I observed a case similar to that mentioned by Dr. Mayo this afternoon. After opening the abdomen I found a large immovable mass in the posterior wall of the stomach together with swollen lymph-nodes. I performed an anterior gastro-enterostomy, believing that the patient would die within two years. After three years, however, he walked into my office looking well and feeling well. Our diagnosis of cancer of the stomach was wrong. We had to deal with an ulcer.

DR. JOHN A. LYONS, Chicago: The cautery knife should be the instrument of choice in these desperate cases, in order to block the lymph-channels, prevent dangerous hemorrhage by plugging the blood-vessels and severe pain by sealing the cut nerve-supply. In these cases the knife, scissors and especially the curet should not be used.

DR. BERTHA VAN HOOSEN, Chicago: From the papers we have just heard we should be led to believe that the symptom of the first stage of cancer is a profuse discharge. I believe that the symptoms of the first stage of cancer are *nil*, and for that reason we shall have to do a great deal of educating of the public before we shall ever get cancer in its first stage. Not long ago a patient came to me with dysmenorrhea. I curetted as a matter of routine and sent the specimen to the laboratory. To my surprise the report was cancer of the body of the uterus. I thought that it must be a mistake, but proof was given from the examination of the specimen after removal. Shortly before that in another case I had removed a small piece from the cervix which was suspicious, but found no cancerous tissue. I proceeded on that diagnosis to amputate the cervix and do other plastic operations for prolapse. The removed cervix was sent to the laboratory and, in parts not suspicious, cancer was found. We are also taught a great deal about the age from 37 to 47. I saw within the last two years an inoperable carcinoma of the cervix involving the whole of the body of the uterus and all the lymph-nodes, and sections showed a far-advanced cancer of the cervix, in a patient not yet 20 years of age. I think, in view of some of these con-

ditions, that it behooves the profession not to appeal so much to the laity, but to practice more routine examinations on all tissues removed from the pelvis, to discredit age and hemorrhage and to look for carcinoma everywhere and anywhere.

Three weeks ago I operated on a patient who had a small lump in the breast. It proved to be a medullary cancer. She also had a slightly enlarged prolapsed ovary. In this prolapsed ovary was medullary carcinoma. Panhysterectomy was done and the radical operation for the breast. Just exactly where the blocking of Dr. Ries comes in in this case I should like to have explained.

Dr. Henry O. Marcy, Boston: The cautery is used with much more safety if asbestos is employed to prevent the heat from being absorbed. I am reminded by the discussion that some years ago in my bacteriologic research work I developed an organism that without question originated in cancer. It "bred true" through several reproductions. Unfortunately, however, I failed utterly in securing its reproduction in the lower animals.

Dr. R. B. Hall, Cincinnati: I grant that Dr. Dorsett is correct in his statements that in these cases patients should not be curetted promiscuously. In my paper I did not speak of the curet in any sense in connection with the diagnosis of cancer late in the disease; I was talking about the early symptoms in these cases. This paper is made up of records of every patient I have had in my office in twenty-five years. These tabulated reports are absolutely correct. The symptoms mentioned in the paper do occur in the early history of cancer just as tabulated, and, if we get the profession at large to consider them, we shall make diagnosis of cancer of the uterus much earlier than heretofore. It is the general practitioner who first sees these cases, and he has the destiny of the people in his hands. I do not curet for diagnosis of cancer of the cervix. It is not necessary, as a rule. Cancer of the body of the uterus is a different proposition. In many cases it is not possible to make a diagnosis early in the disease without curetting. In the case in which there was perforation in the body of the uterus, disease had existed for a long time. There was a large cancer mass when the uterus was curetted. There was no normal uterine tissue left. That was not an early case; it was later in the disease. If one did occasionally perforate the uterus in his effort at a correct diagnosis, would it not be vastly better than to have this great number come too late for operation because no attempt had been made to make a correct diagnosis early enough to render the proper treatment? I think that it would.

Dr. J. F. Percy, Galesburg, Ill.: To me the most important sign is inability to move the mucous membrane over the cervix. I have never seen it mentioned in text-books. I do not believe that it is original with me, but it is a most valuable point. If one cannot move the mucous membrane over the underlying structures, malignancy is almost certainly present. Within two years a woman came to me with procidentia, a complete dropping of the uterus out of the vagina. On the cervix there was a small carcinoma. I cauterized that cervix merely by sticking one of my small cautery irons into the cervical canal. Then I fastened the vaginal walls to the broad ligaments, and removed the uterus. I felt comfortable, believing that I had done the right thing. Within six weeks that woman's pelvis was full of cancer, and within three months she died. I am getting cases after hysterectomy. Within five months I had a case in which the pubic region stood four inches above the level of the abdomen. The woman was cachectic and in a condition you can readily imagine. I stuck the cautery iron up through the vault of the vagina and allowed it to cook there for forty-five minutes. My assistant tried with his fingers to get around the mass in the pelvis. There were metastases in the liver and everywhere else. The woman recently died, but she died comfortably because I had inhibited the rapid progress of the disease. I saw a woman recently who was only 28 years of age to whom three different physicians had been giving local treatment for a year and a half. The only reason for discontinuing these treatments was that they caused so much hemorrhage that she became frightened. You can do nothing with the knife for a growth like that

THE RESPONSIBILITY OF THE DENTIST AND PHYSICIAN IN REGARD TO MOUTH INFECTIONS AND THEIR RELATION TO CONSTITUTIONAL EFFECTS *

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The human mouth is the largest portal through which infectious micro-organisms may enter the body. Almost all varieties of pathogenic bacteria have been found in the human mouth. The gastric juices afford little protection against them. Charles Mayo[1] says:

> Microscopic examination of gastric extracts made by Smithies from 2,406 different individuals with "stomach complaint" (dyspepsia, indigestion and the like) showed that irrespective of the degree of acidity of such gastric extracts, bacteria were present in 87 per cent. Morphologically cocci and diplococci were present in 83 per cent.; short and long rods (often of the colon group) in 58 per cent.; typical streptococci and staphylococci in 17 per cent., and *Leptothrix buccalis* in 24 per cent. In fifty-four cultural studies of saliva from "dyspeptic" patients, streptococci and staphylococci were demonstrated in over 80 per cent., bacilli in 66 per cent., and *Leptothrix buccalis* in more than 14 per cent. Comparing these figures it would appear that the common forms of pus-producing organisms (streptococci and staphylococci) have their proliferation retarded in gastric juice, but that bacilli (often of the colon group) as well as *Leptothrix buccalis* thrive in the stomach.

There is no protection to the organism where an actual lesion exists except that afforded by the leukocytes. The leukocytes in time are overcome in their effort to oppose the destructive effects of micro-organisms. The almost universal presence of small lesions contiguous to the teeth which afford foot-hold for pathogenic bacteria which by any chance gain entrance to the mouth, makes it doubly worth while to study the paths which the bacteria must travel to gain entrance into the circulation. A brief glance at the tissues in question will serve to accentuate the importance of a closer study of mouth infections.

ANATOMIC AND PHYSIOLOGIC CONSIDERATION

The teeth occupy sockets in the alveolar bone, which is built up around the teeth as they erupt. This bone is of a loose, porous character and has very thin edges; on the whole, an insecure frame-work to support the great stress of mastication, amounting to hundreds of thousands of pounds in the course of a year, which the teeth must bear. The teeth are suspended in their sockets by Sharpey's fibers, yellow elastic tissue, which is a ligament of suspension, plentifully supplied with blood through the alveolar process and also through the mucous membrane, the vessels dipping down into the ligament of suspension over the edge of the socket. In this membrane are resident certain glandular structures first described by Black. These glandular tissues are in direct continuity with vascular channels leading out into the mucous membrane and alveolar process. Therefore, any infectious material on the teeth themselves or accumulated between the teeth, at the free margin of the gum, has an uninterrupted avenue of entrance into the deeper structure of the jaw. The continuity of the vascular channels leading from the periodontal membrane into the deeper structures is readily demonstrable by the

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Mayo, Charles H.: Constitutional Disease Secondary to Local Infections, Dental Review, April, 1913, p. 281.

injection of pure oxygen gas under the gum margin by means of a blunt-nosed needle. In this way one can trace these vascular channels through the alveolar process for considerable distances. Therefore, the pyorrhea pocket, which is an ulcerating infected surface full of micro-organisms, or the alveolar abscess, which usually occurs in the apex of the socket around the root-end, are both capable of introducing into the circulation the severest types of infection. If we bear in mind the conical nature of the tooth-sockets and the fact that the tapering roots filling these conical sockets support structures which in every twenty-four hours of the ordinary individual's life may bear a stress of from five to ten thousand pounds, one readily comprehends how infections in the periodontal membrane or about the apices of the tooth's root are forced into the general circulation and lymphatic channels, leading from the teeth in their sockets. The direct lymphatic drainage of the tissues contiguous to the teeth is the most perfect in the whole body, affording direct access to the deeper structures of the neck, maxmilla and mediastinum, thereby making it possible for micro-organisms, introduced into the tissues through a pyorrhea pocket or apical abscess, to travel uninterruptedly into the deep structures of the body. Not only do the lymphatics afford direct access for micro-organisms to the circulation, but the rich plexus of blood-vessels supplying the periodontal membrane and alveolar process invariably suffer from the destructive activity of pus-forming bacteria, opening the blood-vessels themselves to the entrance of germs which are injected into the broken ends of these vessels by the powerful stress of occlusion during the act of mastication, thus making the spread of bacteria in the circulation a certainty. The elastic nature of the periodontal membrane makes it possible for the teeth to bear the shock of mastication for many years longer than they possibly could were they ankylosed into the bone. But this same elastic quality in the periodontal membrane favors the introduction of infection. For, if there is infectious material around a root end, or about the side of a root in a conical socket, and a weight of from 10 to 250 pounds is applied to the occlusial end of such a tooth, the elastic quality of the membrane permits the tooth to sink down in its socket so that the root acts as a plunger, injecting the infectious material into the surrounding tissues.

The teeth themselves afford many square inches of surface for bacterial protection and growth, as they measure in a full denture about 20 linear inches in circumference, and, where destruction of the bony socket attains a depth of an eighth of an inch, we have the equivalent of 2½ square inches of cultural space beneath the gum margin. The necks of the teeth above the gum margin, protected from attrition by the broad bell-shaped occlusal portions of the teeth, afford easily from 2½ to 3 square inches more space on which bacteria may accumulate. This bacterial accumulation on the necks of the teeth is rarely noticed or appreciated, unless some special method of staining is adopted to reveal the presence of micro-organisms. If one desires to appreciate the enormous possibilities for bacterial growth on the necks of the teeth, one should apply a stain which will at once bring into view the bacterial coat always present on these surfaces.

STAINING METHOD

The best disclosing stain for revealing bacterial presence on the tooth's surface is iodin, 45 grains, zinc iodid and potassium iodid, of each 15 grains, water and glycerin, of each 4 ounces.

A cotton sponge dipped into the disclosing stain and applied to the necks of the teeth instantly brings into view a heavy brown coat on the teeth, which, before the application of the stain is made, may seem white and clean.

I advise physicians and dentists who are in doubt as to the cause of the marginal inflammations of the gum and underlying bone to apply always the above disclosing stain, after which the mouth should be rinsed with water, which will leave in clear relief whatever bacterial coat the teeth may at that time bear. If this practice is followed, the observer will be impressed with the constant presence of areas of inflammation and deep pockets of destruction in the alveolar process and bone contiguous to the necks of those teeth which bear the heaviest bacterial coat.

PATHOLOGY OF MOUTH INFECTION

The enormous surface for bacterial growth on the teeth and the protected areas between the teeth and the deep pockets which form in the presence of the heavy bacterial coat which these protected surfaces usually bear, give rise to a multitude of organisms, which of necessity pass into the stomach and bowels, and frequently alter, by their products and presence, the whole chemistry of digestion, so that an infected mouth may produce four distinct pathologic effects as follows:

1. That produced by the dissemination of bacteria through the medium of lymphatic drainage.
2. That produced by bacteria through the open blood-vessel.
3. That damage sustained by the individual through the change in the chemistry of digestion caused by bacterial poisons.
4. That produced by a general bacteriemia which not infrequently is a direct result of the dissemination of bacteria in the blood-stream.

I would not contend for a moment that all the ills to which human flesh is heir may be traced to mouth infections, but I have observed many cases of general infection of different characters which have been traced directly to mouth infections. The ordinary mouth infection may result in the loss of the teeth only, and the general harm resulting from such infection may be only slight. Statistics gathered by me show that there is about one case in every ten in which severe constitutional lesions occur, lesions which are usually overlooked both by physician and dentist, traceable to the mouth. I present herewith the analysis of one thousand and twenty cases of mouth infections:

SUMMARY OF FINDINGS IN 1,020 CASES OF MOUTH INFECTION

It is to be remembered that in the locality in which this experience has been gathered, the population is a young and vigorous one, as compared to the population of older countries, and the death-rate is lower per thousand on account of this fact. Here, the proportion of aged people to people under 40 is much less than that of older localities. Of the one thousand patients observed, few were bed-ridden. In the following deductions, these facts were kept in view. Over half, or, to be accurate, 600 seemed to be absolutely healthy and normal in every way except in the matter of teeth and gums. Caries was more or less prominent in the whole number, and marginal infections, with a greater or less destruction of alveolar process, were common to all of them. There were no marked physical symptoms of ill health, aside from indigestion or mild forms of gastric irritation. As a rule, on correction of the mouth infection, all these

symptoms disappeared. Of the remaining four hundred, 300 gave evidence of more severe physical disturbances, though not severe enough to warrant sending them to a physician, or a more careful scrutiny of their habits of life than treatment of the mouth lesions and the proper rebuilding of the masticating mechanism. In the remaining 120 cases a great variety of physical ailments was observed, and physical examinations were made. The following lines of inquiry were noted and any facts which such inquiry elicited were tabulated: occupation, habits, general systemic condition, temperature, urinalysis, oral history, condition of the nose and throat, quality of the saliva, occlusion, the presence or absence of deposits on the teeth, and the character of such deposits, if present. Note was also made of undue stress, loss of function, prosthesis existing, and the prosthesis needed. The urinalysis involved a consideration of the total bulk of urine in twenty-four hours, its specific gravity, and examination for albumin, sugar, and a search for casts. The physical examination further sought to reveal or explain the systemic conditions which were found to exist in each individual case.

In eighty of these cases, the disturbance ranged over the entire alimentary tract, some patients being chronic sufferers from constipation, others from the opposite condition, namely, looseness of the bowels and diarrhea, all evidencing more or less malnutrition. Fifty had periodic and severe migraine, and the whole group suffered from more or less nervous irritation. Forty were of the extremely neurasthenic type. A considerable number of this group of 120 were also sufferers from chronic abscess. To be accurate, thirty-five had chronic apical abscess, and twenty had severe pericemental abscess as well. Sixty of them gave a history of rheumatoid pains, called by some of them neuralgia, by others rheumatism. In eighty cases, no kidney involvement or abnormal change in the urine was observed. Without exception all were benefited by treatment, showing a marked recession of constitutional symptoms on removal of abscessed and hopelessly loose teeth, and on surgical treatment of those teeth remaining which were worth treatment, followed by careful postoperative care of the mouth. Of the remaining forty cases, all showed greater or less kidney involvement, ranging from a trace of albumin to a considerable amount, with casts. Ten showed the presence of sugar. Twenty showed specific gravity of urine ranging from 1.020 to 1.035. Twenty revealed decreased specific gravity, with a corresponding increase of bulk in the twenty-four hours. Three were suffering from septicemia, and died of septic endocarditis. One died of septicemia without heart involvement. This was a recent case, in which bacteria were found in the bloodstream on culture, which bacteria were identified with those found in the pockets about the teeth, and also in an area of necrosis located about the two upper central incisors. Of this group of forty, twenty patients had pronounced joint involvements, ten of which were distinctly improved by treatment; one might, in fact say, cured. Five were improved and five not benefited. Of these forty cases, nineteen patients showed albumin in the urine before the mouth infection was attacked, which cleared up after the stamping out of the mouth infection. One of these patients had been suffering from ulcer of the stomach, the diagnosis of which was made by an exceedingly competent medical adviser, and was of two years' standing, though believed to be much longer. In this particular case, albumin was present in the urine. This patient suffered an intractable constipation, accompanied by a marked failure of stomach digestion. He yielded to treatment readily and after a period of two months gained in weight over 20 pounds, and lost all evidence of tenderness in the abdomen over the area where stomach ulcer was believed to exist.

A recent case is of great interest. The patient, a banker, suffered severe pain in two of the lumbar vertebrae, accompanied by pain and soreness in the wrist, elbow and finger joints. He made no material improvement until several abscesses, abscessed teeth, and pus infections in pyorrhea pockets were eliminated, after which he made a fairly rapid and satisfactory recovery. This patient was a man 58 years of age, and the total period of his incapacity from business had been eight months. For four months of this time his suffering was exceedingly acute, being bed-ridden. On account of the great tenderness in the vertebra, he was allowed to turn over in bed only once in twenty-four hours. Tuberculosis was not present. None of the symptoms bore out such a diagnosis.

In another case, the patient, a man of 62 years, suffered from a persistent and destructive inflammation of his left eye, having continuous pain for months, gradually losing the sight of the eye, and suffering intense pain radiating from the eye to the occipital region and down into the neck and shoulder. An abscess was finally located in the lower mandible near the mental foramen, involving the inferior dental canal. The opening of this abscess resulted in complete freedom from pain and a fairly rapid recovery after an illness of five months. The patient regained his bodily strength and vigor, but never regained the sight in his left eye.

There really seems to be no function or tissue of the body which may not be reached by infections occurring in or originating through lesions in the oral tissues. It seems eminently proper, therefore, that physicians should scrutinize more closely the mouths of their patients in all their routine examinations; insist on radiographic examination to discover impacted and diseased teeth; and insist on the extraction of diseased teeth, unless the patient is in the hands of a competent dentist who comprehends the vital relation which diseased and impacted teeth bear to the general health of the individual.

ABSTRACT OF DISCUSSION

DR. JOSEPH HEAD, Philadelphia: The time has come when the dentist no longer considers as his chief work the restoration of teeth for the purposes of mastication. His primary work in the future will be to rid the mouth of infection, in order that the system may not be subject to diseases that, with the proper method of treatment, could be prevented. The point which Dr. Hartzell made, namely, that physicians should examine the mouths of patients to see if pyorrhea is present, is well taken, but I would add that dentists must feel that the examination of the mouth for infection takes the most subtle discrimination and analysis and requires all the technical skill and special knowledge of a dentist and a medical man combined. I had an interesting case in point a few weeks ago. A doctor came to me with a tonsil enlarged to three times its normal size and told me that he thought that he had pyorrhea. I looked into his mouth and it seemed perfectly healthy. There was apparently no disease of the gums. Finally, I probed between the wisdom tooth and the twelve-year molar; the probe went up past the buccal roots into a large pocket. The patient was particularly anxious that I should make a vaccine, so I took the proper amount of material from the walls at the base of the pocket and then made an application of ammonium bifluorid to the pocket. In a week the patient came back with the expectation of having me use the vaccine, but when I looked into his mouth I found that the tonsil had been reduced to its normal size

and there seemed to be no other condition of infection present. The pyorrhea pocket was cleaned up. When the contamination from the tooth was removed the tonsil regained its normal condition.

DR. T. L. GILMER, Chicago: I think that the pathology of the teeth has been pretty well understood in the past, but aside from this the mouth has received insufficient attention. The average mouth may look healthy, but I venture to say that, if a narrow, very thin explorer is passed between the teeth and gingivae, hardly a mouth will be found without some pockets about the roots of the teeth. These pockets arise from slight traumatism. We often find in the lingual gingivae of the upper central incisors slight injuries which become pyorrhea pockets. Had these injuries been found in time and the cause removed, a more serious infection, or a pyorrhea pocket might have been obviated. Fortunately of late a real interest is being exhibited by dentists in the condition of the mouths as well as the teeth of their patients.

The members of the Northern Illinois District Dental Society are making a systematic examination of mouths to determine the extent of pockets about the teeth. This must lead to good results. When the physician more fully comes to realize the dangers from foci of infection in the mouth, which not infrequently leads to serious pathologic manifestations in other parts of the body, he is going to examine the mouths of his patients more carefully. The average practitioner of medicine is not sufficiently skilled in oral examinations to make a really critical examination of the mouth. He should supplement his work, when he suspects that the mouth may contain a focus of infection, which may be the cause of disease elsewhere, by calling to his assistance a well-qualified dentist, just as he would call in a rhinologist or an ophthalmologist if he wished the nose or the eye examined. On the other hand, the dentist ought to look more carefully into the physical condition of his patient when he finds chronic infections in the mouth to determine whether the oral condition may not have caused some manifestation of disease, in order that he may refer the patient to a skilled general practitioner, if necessary. All diseased and unclean mouths should be made clean and healthy. This ought to be done regardless of the loss of teeth. Teeth are very important organs and should not be removed ruthlessly, and most mouths may be made healthy and the teeth saved, but health and life are much more important than teeth.

DR. F. B. MOOREHEAD, Chicago: There is a definite antecedent in this condition which we are trying to correct, I think, by working at the wrong end. When I was a student the emphasis was not placed on the possibility of the mouth as a disease-producing factor, but on the necessity of a fine gold filling, of accurate adaptation, of partial plates and full dentures, and the accurate construction of crowns and bridges. We do not gain anything by criticizing our forbears. This is a matter of evolution. Therefore it is not proper to condemn the dental profession of those days, but it is only fair to say that they gave insufficient attention to the pathologic side of the profession and overemphasized, overstated, the mechanical side—if you can make that distinction. This attention to the mechanical side was born and bred in them as students, and it is difficult to get away from such training unless one is a student all through life. One may go into a dental college infirmary to-day and witness students at work putting crowns and bridges into mouths that are in a terrible condition, the teeth covered with tartar and pyorrhea pockets filled with pus. I am not overstating the facts. Our schools should insist that after the student has relieved the patient's suffering he must see that the tissues in the mouth are made healthy before he attempts anything in the way of construction of mechanical aids to mastication. If this is emphasized and insisted on the student is going to get the point of view that he should have. Then we must demonstrate to our students the infections that are being discovered to-day that can be traced directly to the mouth. It is possible, of course, to overstate the question and do ourselves harm by saying that the mouth is responsible for everything; but the statement that the mouth is, perhaps, the most important single avenue of infection in the body will, I believe, bear close investigation. There are, however, other avenues of infection — the adenoid tissue, the tonsil, the pharynx, the prostate and many other areas that must not be lost sight of. The work that is going to accomplish most in the future is the proper training of the dental student.

DR. NELSON T. SHIELDS, New York: If I remember correctly, Dr. Hartzell said that quite a large percentage of his patients were neurasthenics and that 40 per cent. of 120 neurasthenics showed the direct relation between the neurasthenic condition and infection in the tissues around the teeth. For the perfect treatment and care of the mouth all calcific deposits should be removed, and thorough prophylaxis should be established. If in that treatment a part of the root is exposed, the treatment is liable not to end there. If this should give temporary relief, well and good. If the patient should have an infected gum within a short period afterward, and the infection cannot be controlled by external applications or constitutional treatment, with the help of the physician, then you should look for the internal injury which would be within the pulp itself, because you cannot have an exposed root without having the calcific deposits within the pulp. This will induce an abnormal flow of blood through the arteries and also an immigration of leukocytes, which cause compression on the veins within the pulp, and this likewise causes calcification by irritating the odontoblastic cells. This classification, if the constitutional cause is not removed, will eventually cause the calcification of the entire pulp, which naturally means death to it. So that in the neurasthenic cases, gum infections are apt to be caused by the canaliculi extending entirely through the dentin to the cementum, and can be caused from within the pulp from constitutional causes as well as from local causes which are manifested on the outside of the teeth. In severe cases I would extirpate the pulp of such teeth, and after thorough cleansing of the root-canals mechanically, would fill them to their apexes with gold, and the remaining portion of the canals with the oxychlorid of zinc.

DR. WILLIAM C. FISHER, New York: I think that, without a doubt, we should excuse the teachers of years past on the ground of progress, but we cannot excuse those who are teaching the same things to-day. The members of this Section were recently invited to the meeting of a state examining board. One of the examiners took two or three of us to a chair and exhibited a new method of crowning. In passing a mirror around the mouth I saw one of the filthiest mouths I have ever seen in a clinic. A student was being taught to do but one thing in that mouth — to make some new character of cast crown that some particular skill has brought out. I remarked to the examiner, "My, what a wonderful case for a prophylactic clinic." He said, "Yes, it would be a rather good case for that, but we are just holding a crown examination to-day." What conception of dentistry can that man have if a state board of six men will license him to put a crown into a mouth without making any effort to remove the calcareous deposits and reduce the hemorrhagic condition of the gums? One lateral was almost completely hidden posteriorly by the congested gum; but that had nothing to do with the examination they were holding that day. How much better to say to a student or a graduate, "Here is a mouth; place that mouth in a healthy condition," and see what procedures he would take.

DR. C. H. OAKMAN, Detroit: We who knew Dr. Harlen and who had the privilege of being his students know that prophylaxis was the fundamental teaching of his work, although he did not use the term prophylaxis. "When the patient enters your chair, examine the mouth carefully and see that the mouth and teeth are properly cleaned before any reparative work is done." This was his teaching; he was far in advance of the times and now, after twenty-two years, his teaching has become almost universal. Dr. Fisher just said that state dental boards are lackadaisical in some of their work, but we who have served on state boards for a number of years would like to do many things which are absolutely impossible. We cannot put a mouth into a hygienic condition when we have an urgent case to complete in a limited time. I think we are just awakening to a realization

of the treatment of pyorrhea alveolaris. Possibly all of us, who have treated pyorrhea, have treated cases repeatedly and have met with no definite result. We discharge the patient after a dozen or more treatments, telling him to return in thirty or sixty days. At the expiration of that time the condition of the gums about the cervices of the teeth and other pathological conditions show that our progress in their treatment was quite unsatisfactory. I have in mind three cases of this kind which I treated. I had the urine tested and in one case found that the patient had 6 per cent. sugar and another 3½ per cent.; the third went to Carlsbad with 4 per cent., but after treatment there returned with the urine free from sugar. These cases were not amenable to treatment while the sugar condition was apparent, but after its elimination two of the cases readily yielded to treatment. I now make it a practice to have the urine examined in all suspected cases. Dr. Talbot says, and I think he is right, that a great many of the so-called cases of pyorrhea are no more than cases of gingivitis. There will be no pyorrhea if we can eliminate gingivitis early in the case. It is only when we allow that condition to persist that pyorrhea is developed.

Dr. G. V. I. Brown, Milwaukee, Wis.: I think that Dr. Fisher is unreasonable. He has evidently forgotten that these men are not teaching. They are supposed to let the applicants do as they wish to do, marking them accordingly. I think that it would be out of place for an examiner to take up that matter with the applicant. On the other hand, take the applicant's side: he has only a limited time in which to do certain things; there are a great many other things which he might do in his office. I think that when Dr. Hartzell undertakes to say what should and should not be done in this matter of oral hygiene he should remember that in order that this may be done to the best possible extent, an exceedingly delicate skill in diagnosis is required. It seems to me that that is the weak point in this paper, and that the purpose of this section ought to be in the direction of trying to make it easier for physicians and dentists to come together on a common plane, so that the knowledge of both may be applied in these cases and a great many of them relieved. For instance, I have just had a case of a little one who gave a history of a recent tonsillitis and of the injection during the course of treatment of large doses of antitoxin. After a short period of rest a swelling appeared which involved the region of the neck, the submaxillary region and all the regions to some extent behind and above the angle of the jaw; to complicate the condition still more a dentist had been consulted and had opened into a deciduous molar. The deciduous molar was then undoubtedly involved, whether or not it had been previously. At any rate, the treatment of the case through that deciduous molar, if it were an infection from the tonsillitis, would not have done any good. The patient's urine showed acetone, diacetic acid and albumin; in other words, that little child was in a condition in which the giving of an anesthetic was almost prohibitive. This is just the sort of thing that occurs when the physician and the dentist work separately. In this case a condition of things had been brought about in which it was almost impossible for anyone to make a diagnosis, and so I did what anyone would under the circumstances. The condition of the kidney was definite. I kept the child quiet, on proper diet and carried her through nicely. We finally found pus, and after its evacuation later—there were two or three ounces—we were pleased to find that in the culture it showed no growth.

Dr. William C. Fisher, New York: We had an address from our chairman yesterday which pointed out the great need for work along the lines of Dr. Hartzell's paper. We have all been talking of and wondering where we could get men to do this work, and we said that we would have to educate them. The minute a man criticizes what is being done by the state board, he is censured for it. Dr. Brown made the statement yesterday in private that if one hundred dentists were invited to this room, 25 per cent. could not discuss the papers here. They will not be educated to discuss these scientific papers if the making a crown is the main requirement for getting a license. I want to reiterate that I consider an examination of this kind unfair to the applicant and to his alma mater, and to the persons he is to serve. We do not want good jewelers. My hat is off to the prosthetic men; they did good work in the past. They laid the foundation on which we have built our profession. This side of our work should not be slighted, but the pathologic side is still being slighted by our state boards.

Dr. Truman W. Brophy, Chicago: The teachings of Dr. Hartzell's paper are living issues. They will be quoted by men in the profession everywhere. His conclusions, I think, are logical. The discussion which has followed has, it seems to me, been in part rather unfortunate. Dr. Fisher brought up a phase of the subject of prophylaxis which, it seems to me, should be carefully considered by this Section. I know quite well some things about dental teaching and the work that has been done for more than a quarter of a century in dental colleges, which have made American dentists famous throughout the world. I know that the American dental college professor in other lands is respected and regarded as an honorable man. We know that the good status of our profession to-day throughout the world has been due more to the work of the honest dental college professor than to any other factor, and as a dental college man, one who has spent the better part of his life in assisting in this great work of dental education, I regret that any man should criticize, not only the college man, but also the members of boards of examiners, who are working with all their might to advance the interests of the profession and protect the people from the charlatan. When a man stands on this floor and says that the board is neglecting what he believes to be a duty, he does not remember that for over a period of two weeks this board has been laboring hard with these men right along the very lines that he says are neglected. More than one hundred candidates are here before the state board, as I understand it. They have not the time nor the opportunity here to enter into the study of pathology or carry out a long course of treatment. They have been through that in their written examinations, and to-day they are doing the practical work which the board demands. These are facts which we cannot overlook, and the members of the board are all to be commended for their self-sacrifice, their devotion, and their earnest labor to see to it that these men, now having completed their written examinations and answered all the questions as best they knew how, are now tested as to their practical merits.

Dr. A. T. Rasmussen, La Crosse, Wis.: This controversy regarding the duties of the state board makes me feel sorry for any state board. I was one of the men to take the examination in the state of Wisconsin, and I really cannot forgive myself for the way I treated that case. I knew it was wrong. I said to the examining board, "Gentlemen, it will never do." One member said to me: "We have no other patient; go to it" What the results were I do not know. We were short of material. One of the remarks Dr. Brophy made was in reference to practical things. I think that we ought to do away with the discrimination between practical and theoretical dentistry. Pathology is practical. We must have a working knowledge of pathology if we are going to treat diseases of the mouth, or any other part of the body. I am not criticizing anybody for the use of these terms. I use them myself inadvertently, but I think that we should aim to get away from the idea that pathology is not practical.

One other thing I wish to speak of is this: In some of these clinics there is no provision made for washing the hands, and it is not right for men to put their hands in the mouths of patients without washing them. If we will look after these so-called little things, the big ones will take care of themsleves.

I think Dr. Moorehead struck the keynote of the whole situation when he said, "unless we are students through life." Unless a man is a student through life, he has no business in the profession—either medical or dental.

Dr. C. H. Oakman, Detroit: For the inspection of the teeth of schoolchildren in the city of Detroit we have four dentists who never use a mouth-mirror. If an inspector uses one and it becomes known to the Board of Health, he will be censured. Instruments of any kind are not permitted in their work. Wooden tongue-depressors are used and discarded after being used but once. In this way there is no infection. Neither

is it necessary for the operator to put his fingers in the child's mouth. It is impossible to make a thorough examination of the teeth in this manner. We do not intend to make as thorough an examination as if the patient were being examined at the clinic. If the mouth is unhygienic, teeth covered with tartar, food deposits, etc., it is absolutely impossible for an inspector to make a comprehensive examination. What we aim to do is to find the defects, and then refer the patients to their dentist or to the clinic. At the same time we place in the child's hand a pamphlet on oral hygiene which it is instructed to take home, so that the parents may be enlightened on this subject.

Christian Scientists did not want the children's teeth examined by the medical department, so as soon as the child brought a note from the parent saying that it was not necessary to have the teeth examined, according to their way of thinking, they were not molested. But I think in all clinics where a wooden tongue-depressor can be used the mouth-mirror should never be used.

DR. THOMAS B. HARTZELL, Minneapolis: I was informed by the secretary of this section that the section did not make a great bid for dentists as members, because the average dentist could not take part in a discussion and keep himself to the subject, and it has been beautifully demonstrated here to-day that this is the case. Two or three of you have not discussed my paper, so I will recapitulate briefly the thought of that paper and tell you why I wrote it. I wished to show that the mouth is the great portal of infection; that the continuity of lymphatic tissue leading from it makes it almost impossible for the remainder of the body not to be infected from it if lesions exist therein, and I wished to bring to the medical profession, as a profession, a group of statistics proving that about one in every ten persons suffering from systemic infections will show the portal of infection in the mouth. I did not say a word about pyorrhea or any other specific kind of mouth infection. I wanted to make evident that the mouth is a great portal, perhaps three or four times as great in importance as any other part of the body, and I wished to bring that up in such a way that my medical friends would believe it and give it the credit it should receive.

As to the question of the treatment of pyorrhea or any other type of mouth infection, I have nothing to offer in this paper, but I do wish to thank the men who have apprehended my idea and discussed that. I do not believe that the part of the discussion relating to methods or special diseases, pyorrhea, abscess or any thing of that kind, really belongs in a discussion of this paper. Medical men have come to think, and justly so, that dentists are greatly at fault, and have not sufficient scientific training, as was stated by Dr. Brophy and Dr. Moorehead.

If the medical profession realizes that dentists can do better work in this direction, they will unite in demanding of the dental profession that they must do it by setting an example in the way of extracting diseased teeth and condemning their confrères who attempt to do conservative work and at the same time foster infection. If this results, then my paper will have accomplished something worth while.

Suicide in Prussia from 1907 to 1911.—According to the National Statistical Bureau of Prussia there were 8,422 suicides in 1911 (6,394 males and 2,028 females) and in the previous year 8,179 (6,164 males and 2,015 females), an excess in the last reported year of 243. Probably this increase is due to the great heat of 1911, as experience shows that hot summers favor suicide. For the period from 1907 to 1911 the number of suicides per hundred thousand living varied between twenty and twenty-two annually. Among 1,000 suicides there were each year three to four times as many men as women. The tendency to self-destruction is of variable geographic distribution, depending much on race and religion. The frequency of suicide varies greatly also according to age, sex, family condition, profession and social position. It has been shown that the tendency grows with increasing age. The first decade may in general be regarded as immune, yet 1911 showed two suicides in children under 10 years.

INJURIES PRODUCED BY STARCH *

I. A. ABT, M.D.
CHICAGO

The *Mehlnährschaden* of the Germans, or the "starch injuries," have been extensively discussed in the German literature, especially in the writings of Czerny and Keller, and the Breslau school, and elaborated by the studies of Risel and Rietschel. To the genius of Czerny and Keller we are indebted for the conceptions of injuries to the organism produced by fat and starch and overfeeding with milk. These studies gave a great impetus to investigations of injurious effects produced by the component parts of milk. Thus, the ill-effects from excessive feeding of sugar, salts, starches, proteins and fats have been extensively studied.

In this brief clinical report I desire to review the work of the German authors on the starch injuries and to recite personal experiences. I feel it necessary to acknowledge that no original contribution is being offered, and feel that sufficient excuse for the publication of this report lies in the fact that few, if any, cases have been reported in the English literature.

This condition known to the Germans as *Mehlnährschäden*, seems to be little known in this country. Czerny and Kellar point out that starch in proper dosage is not injurious to the infant's organism. It has been suggested that nitrogen is better retained if small quantities of starch are added to the food. If it be given in excessive quantities for an extended period of time, particularly if it be used without the addition of milk, it may lead to disastrous results.

The condition arises in young infants who are fed starch preparations without the addition of milk. More frequently it is seen in infants who have suffered from a gastro-intestinal disturbance and for whom the physician has ordered a starch water, either barley or rice or oatmeal, and when this has been continued without the addition of milk, usually without the knowledge of the physician, for a long period. The pathologic condition which results from overfeeding of starch is due probably to an actual food deprivation measured in calories. The starvation is particularly due to the insufficiency of protein, fat and salts in the diet. The salts contained in the starch food as well as the starch itself, tend at times to combine with water in the tissues, leading to water retention. This causes the infant to appear plump, though pasty and pale. In the meantime, the normal production of antibodies in the organism is diminished and the resistance of the infant against infection is lowered, and secondary infections are likely to occur. Dyspeptic conditions with diarrhea and loss in weight result. If the condition of inanition continues for some time, fermentation and inflammation and loss of function of the alimentary tract are inevitable. This latter condition will explain the atrophic type of starch injuries to be referred to again.

The disease presents itself in three main types. Very frequently the little patients appear plump and are thought to be unusually well developed.

1. In cases in which there is a deficiency of salt without retention of water, complicated by diarrhea, the atrophic type presents. The muscles are hypertonic, the tissues dry, the skin and mucous surfaces are pale and the abdomen is distended.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

2. The hydremic type occurs most frequently in cases in which salt is added to the starch preparations, or in which a small quantity of milk is used in the food.

These children remain stationary or increase in weight; sometimes the increase is enormous. If considerable milk is added to the diet at this point, the infants lose rapidly in weight. If the starch diet is resumed an increase in weight occurs. Gradually they present an edematous, pasty appearance, due in part to retention of water, and in part to accumulation of subcutaneous fat. The musculature is doughy on palpation; the abdominal wall and lower limbs become edematous, not due to nephritis but to a condition of simple hydremia. Owing to the diminution of the natural immunity the infant is predisposed to infections, such as bronchopneumonia, pharyngitis, otitis, abscesses and phlegmons. Czerny mentions that xerosis of the conjunctiva and cornea with sequelae are not infrequent and the condition usually indicates a fatal termination. He notes that ophthalmologists recognize the fact that infants with this eye disease seldom survive.

3. The hypertonic form is the most infrequent type. The muscles become rigidly contracted and are stiff and board-like. On account of this condition the spine is like a rigid tube, the occiput is bent backward and is bored deeply into the pillow, the arms and legs are adducted, the forearms are flexed at the elbow and the joints offer resistance to passive motion. In the severe types rigidity is so marked that the patient appears like one in catalepsy. Galvanic excitability with pronounced symptoms of tetany may be elicited. The bowel movements are usually yellowish-brown and formed, and frequently show starch with the iodin test. In the severer cases in which fermentation has occurred the stools may become thin with a penetrating sour odor.

PROGNOSIS AND TREATMENT

The dangers resulting from starch injury are most frequent in young infants. Starch can be digested by young babies, but only in small quantity. The mortality in these cases is high. The greatest danger exists on account of the loss of the natural immunity and lowered resistance, rendering infections more possible. The atrophic form seems most amenable to treatment and offers the best prognosis.

The treatment consists in the administration of milk containing a moderate quantity of fat. Carbohydrate food, such as buttermilk mixtures, malt soup and cereal decoctions should be avoided. Best of all is breast-milk. Even with the use of breast-milk one should consider the damaged tolerance of the organism and small quantities frequently repeated should be administered; first 2 ounces, 6 ounces, 10 ounces per day increasing gradually. Even with the use of breast-milk the cure will not be rapid. There may at first be loss of weight. The period of repair may be protracted, the damaged normal immunity may be slow to return and the use of the breast-milk should be persisted in for a considerable period, at least until the patient shows increase in weight. If breast-milk is not available, it has been suggested to use small quantities of undiluted cow's milk, 1 to 2 ounces per day, gradually increasing to 3 ounces and eventually to 6 ounces; finally by gradual increase to 10 or 12 ounces. The deficient quantity of water in the food may be counterbalanced by giving tea or water sweetened with saccharin. Or the milk may be used diluted with water, small quantities being frequently repeated. In some cases top-milk mixtures might be indicated, though the infant's tolerance for fat should not be exceeded.

CASE 1.—A. C., aged 10 months, admitted into my service in the children's ward of the Michael Reese Hospital, July 27, 1912. The baby was one of twins. She was breast-fed for the first month; then she was put on milk and Mellin's food until 4 months old, when she began to vomit her feedings. The mother was advised to try strained oatmeal gruels without milk. She instituted this plan of feeding until the present time. During the past week the patient has had diarrhea; first three or four yellow slimy stools and after the administration of calomel numerous green stools. She has not vomited, is very restless, cries a great deal and sleeps poorly. There is no history of previous illness.

Patient has six brothers and sisters, all living and well. When she was admitted into the hospital it was noticed that she appeared pasty, somewhat swollen. Her face was puffed and on palpation the surface of her body gave a doughy sensation. The eyes showed cloudiness of both corneae. On the left eye over the conjunctiva a large vesicle occurred. In the right eye several small vesicles were present. Marked photophobia, increased lacrimation and circumcorneal injection was noted. There was no purulent discharge. The bony thorax showed the presence of a well-marked rosary and a flaring of the costal arches. The abdomen was somewhat depressed. There appeared to be a loss of subcutaneous adipose tissue and the skin was harsh and dry. The abdomen was covered with numerous macular discolored areas varying in size from a pin point to a small bean, many tending to coalesce, showing a distinct bluish color—a diffuse purpura hemorrhagica. The photophobia tended to increase, and the cloudiness of the cornea, particularly of the right eye, was more distinct. There was marked keratitis in both eyes. During the first few days the infant's temperature was rather high, reaching 104 F. The leukocyte count was 33,500, with 82 per cent. neutrophils, six small mononuclears, eight large mononuclears, four eosinophils, and hemoglobin 62. On admission the child was greatly prostrated, rapid pulse and slightly accelerated respiration.

The infant at first was given a tea diet for twelve hours; then was placed on dram doses of breast-milk every hour and when an improvement in the appearance of the child was noted 6 drams of breast-milk were given every two hours. On the fifth day after admission the child was given 6 drams of skim-milk and 6 drams of breast-milk with 2 grains of citrate of soda, and 4 ounces of water every three hours. The baby lost 4 ounces in weight during the first several days of this treatment. On the fourteenth day after admission to the hospital the breast-milk and the skim-milk were increased to 2 ounces of each and 2 per cent. of *Nährzucker* was added to the diet. On the thirty-third day after admission she had shown considerable improvement and meat broths with vegetables were added to the diet. At the same time mashed carrots and baked potato were given without bad results.

An abscess appeared on the back after the child had been in the hospital for six weeks, which required incision and drainage. Later on a somewhat generalized furunculosis appeared, which seemed to improve with treatment by staphylococcus vaccine. One month after admission the patient showed an abundance of pus in the urine with elevation of temperature and considerable constitutional disturbance. The corneal opacity had entirely disappeared. The baby was playful, happy and active. She enjoyed her food, was gaining in weight, the purpuric spots on the abdomen slowly though constantly showed marked tendency to fade.

The child was discharged on Dec. 23, 1912, after fifty-nine days of treatment, showing a marked improvement.

CASE 2.—This infant, also one of twins, from the service of Dr. Julius Hess, weighed 7 pounds at birth. It was three months old on admission to the hospital. The first baby was breast-fed exclusively, while the second of the twins, which was the stronger at birth was breast-fed for the first two weeks, then given half milk and half oatmeal water for three weeks. Milk-sugar was added at the end of this time and the baby showed symptoms of indigestion and diarrhea. As it

seemed quite impossible for the baby to take milk it was put back on the oatmeal water and this was continued for several weeks. After some time the bowel movements became thin and sour and frequent and she vomited very much. Emaciation was progressive and the baby weighed 6 pounds 2 ounces when she was three months old. The skin was dry and inelastic; the normal turgor was absent; the baby was atrophic and had a senile appearance. The breathing was rapid and shallow and the condition seemed desperate. The infant was placed on small doses of breast-milk and three weeks afterward was beginning to gain in weight and from this time on she made a rapid and complete recovery.

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ABSTRACT OF DISCUSSION

DR. F. P. GENGENBACH, Denver: I wish to cite a case that came to my attention about two years ago. The patient was a baby about 7 months old with acute gastro-intestinal disturbance. The doctor took the baby off its food and put it on barley-water. Unfortunately for the baby, the doctor became ill and forgot about it, and the mother left the baby on barley-water—nothing else—for two weeks. I found the baby with all the appearances of a child with marked nephritis. Its face was puffed up and the whole body edematous. The case might have been called one of acute *Mehlnährschadung*. Things were not so desperate as they looked, however. I took the baby off the barley-water, gave it a weak milk modification and it promptly recovered.

DR. F. W. SCHLUTZ, Minneapolis: A case of this kind has recently come under my care. The most pronounced symptom was the hypertonic contraction of the muscles of the extremities. Both hands were clenched and the nails buried deeply in the palms. This condition had existed for weeks. The child, for several months, had received only oatmeal or barley-water seasoned with salt. The extremities presented marked edema. Another feature in this case was the condition of the sensorium. The child gave the impression of idiocy. The sensorium was always clouded. The mother of the child had a 4-month-old baby which she was nursing. This fact made possible the therapy carried out in this case. The nursing baby was put on mixed feeding—part breast and part buttermilk. The sick child was given breast-milk, expressed from the mother, with supplementary feeding of buttermilk. The physical condition of the child has improved markedly. The mental condition and the hypertonicity remain unchanged. It will be interesting to see whether these conditions will improve or whether they are permanent changes.

DR. JULIUS HESS, Chicago: I believe that there is an important lesson to be learned from these cases. Either we do not see many of them, or we lay the death to something else. I believe the latter is true. It is a common practice to tell the mother, if the baby has diarrhea, to put it on barley-water or rice-water, but I believe we are a little indifferent about warning as to the dangers of this, especially of its long continued and repeated use as an exclusive diet. Most mothers keep the baby on the cereal waters but a short time, but as soon as the baby has a loose bowel they repeat it. With each withdrawal of food and placing on cereal water exclusively, the convalescence is slower. I believe the lowered resistance, especially to general infection, is marked. It is our duty to warn against the complete withdrawal of food over any continued period.

DR. L. DUNCAN BULKLEY, New York: I do not know how many of you remember a paper I read many years ago before this section about a certain preparation for infant feeding which I called wheat jelly. I have used this for over twenty years in hundreds of cases. My opinion about all this trouble is that starch is generally not cooked enough. I use crushed wheat—the whole wheat. My directions are to take a teacupful of whole wheat, put it in cold water in the afternoon at 3 o'clock and boil for three hours. Then set it aside in a china vessel. Those of you who have eaten wheat which has been cooked over night know that it is sweet; a certain amount of diastatic fermentation has taken place. In the morning more water is stirred into it to make it quite soft, and it is boiled three hours more. It is then rubbed through a fine sieve with the bowl of a spoon. By scraping off what is under the sieve we have a jelly-like mass representing all the wheat, except the external silex coat.

Two or three teaspoonfuls of this wheat are put into the milk at each feeding. It passes readily through the nipple. In this manner we have extracted all the components from the wheat, including the nitrogen from the germ and the phosphates from the outer coating; we have then an entire wheat product, which nature intended we should take. For twenty years and more I have never used barley or any of the prepared foods, as I find that the wheat jelly is a perfect nutrient. I think that this is worth trying for the summer diarrheas.

THE TREATMENT OF HEMORRHAGIC DISORDERS *

THOMAS B. COOLEY, M.D.
DETROIT

Within the past few years, chiefly because of better knowledge of the physiology of the blood, much new light has been thrown on a group of diseases which have always aroused great interest, but whose pathology has been obscure, and whose treatment has been exceedingly unsatisfactory.

Of these diseases, the most important clinical feature of which is a tendency to uncontrollable hemorrhage, the most important to pediatrics are the so-called melena neonatorum, the purpuras and hemophilia; the last being, of course, equally evident in later life. Etiologically, we are still in the dark regarding all of them. Hemophilia shows two very important differences from the others. It is a permanent, not a temporary condition, and it is not characterized by spontaneous bleeding or oozing from the vessels, but merely by failure of the ordinary method by which a break in the vessel wall is sealed after it occurs. In purpura, in a number of the various conditions which are grouped under the vague term "melena," and in the hemorrhage of septicemia, which seem to be closely related, there is, on the other hand, a very pronounced tendency to spontaneous leakage from the vessels, as well as the failure of the blood-clot to form sufficiently to put a stop to this. In these diseases, moreover, if the outcome is not fatal, the hemorrhagic tendency usually entirely disappears, and the patients become wholly normal in this respect. These differences seem to me to be highly important in formulating anything like a satisfactory theory of the probable causes of the conditions and the rationale of treatment. It is wholly impossible, within the limits of a short paper, to analyze the voluminous literature of the past few years regarding the pathogenesis of hemorrhagic diseases. I shall try merely to present briefly the points important to my argument.

It has long been noted that in all these conditions the blood was often slow to clot, the clot when formed frequently was abnormally soft, and the failure of the clot properly to seal the vessel was generally believed to be the reason for the continuance of the hemorrhage. As the physiology of clot formation became better understood, a lack in the blood of some one of the essential elements was assumed to be the cause of this failure. Calcium, fibrinogen and prothrombin all being essential to clotting, a deficiency of any one of them might delay clot formation, while an excess of antithrombin would

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prevent thrombin formation even in the presence of sufficient prothrombin. The existence of thrombokinase is still in doubt, but there are those who believe that its absence will account for some cases. Definite proof of a deficiency of any of these elements was long lacking. Duke[1] in 1910 thought that he had shown a relation between a low platelet count and purpura and has emphasized this idea in further publications. The blood low in platelets is said to clot in normal time, but the clot does not contract sufficiently to seal the vessel. Schloss[2] found thrombin lacking in some cases of melena. Whipple[3] has found antithrombin present in septicemia, prothrombin absent melena, and fibrinogen deficient in hepatic cirrhosis. He suggests the possibility of classifying the hemorrhagic diseases according to which element is lacking. Calcium has not, I believe, been proved to be absent in any case of hemorrhage, though it is probable that the abnormal coagulability in jaundice may be due to relative lime deficiency. Sahli's[4] studies of hemophilic blood were interpreted as showing lack of thrombokinase, while Addis[5] thinks that he has shown defective activation of prothrombin.

It seems proper to believe, in view of this work, that temporary or permanent absence of some one of the clot elements is the usual cause of the persistence of hemorrhage in these conditions, and that different elements fail in different conditions, if not in different cases of the same condition. Whether or not we are also to believe with Whipple and others, that this is also the cause of the inception of hemorrhage, abandoning the older idea of some unexplained fault of the vessel walls, is another question. As Schloss has said, it seems impossible that a lack of any one of the clot elements should in itself account for a leakage of blood through a normal vessel wall; moreover, if this were the case, spontaneous hemorrhages should be common in hemophilia, where the blood abnormality is permanent. In spite of the lack of any definite proof, it seems to me that we must assume a diseased condition of the vessel wall as well as of the blood, except perhaps in those cases of the melena group where ulcers, thrombi or extreme congestion are present.

In accord with this idea of the failure of clotting as the cause of the persistence of the hemorrhage, treatment intended to supply the lacking element has very rapidly come into favor. The only inorganic blood-clotting element, lime, has been tried, but with little success. The other elements being all peculiar to the blood, blood preparations in one form or another are now being widely used in all of these diseases, and, if one were to judge merely by the reported cases, with almost invariable success. Normal animal serum was first used, chiefly that of the horse, sometimes that of other animals; the serums of the dog, bullock and goat being least in favor, because of toxic properties. Antitoxin has a number of times served in a pinch.

Lately, apparently owing chiefly to Welch's[6] very favorable reports, though he was not the first to suggest it, human serum has been used and highly praised by various American writers. Schloss injected whole human blood subcutaneously, believing it possibly advantageous to have all the blood constituents present. Very recently, precipitated, dried and powdered horse-serum, said to contain all the essentials to clot formation in at least normal concentration, and less subject to deterioration than in the liquid form, is being urged. Clowes[7] believes this to be more efficacious than fresh serum. Transfusion of whole blood has so far been reserved almost exclusively for use as a last resort in really exsanguinated patients, because, no doubt, of the difficulty attending ordinary methods of performing it.

Two things are very striking about the reports of successful treatment with blood or serum. One is the promptness with which the hemorrhage ceases, and the other, the relatively small amount used. Schloss, for instance, got prompt recovery after a single injection of 5 c.c. of whole blood, and most of the recoveries have been after injections of not more than 20 or 30 c.c. in all. Clowes reports the necessity of large amounts in one case of melena.

It is wholly impossible, at present, to gain any really accurate idea of the value of serum or blood injections or of the relative value of the different preparations. The tendency to report success rather than failure is well known, and many of the reports to be found are of single instances of success with any one of the preparations.

The reports of series of cases deal chiefly with melena. Swift and Green,[8] using rabbit-serum, had rather less success, apparently, than in the cases which were treated with gelatin and which they report in the same article. Schloss had much better results with human serum and whole blood, the whole blood being apparently more effective and in smaller quantities. Welch had remarkable results with human serum. Clowes' article deals with a series of very diverse conditions treated with solutions of serum powder. He seems to assume that there was lack of thrombin in all of these cases, though in some of them there seems to be no reason, except the persistence of hemorrhage, to suppose that a deficiency existed of any of the clot elements. In gastric ulcer and pulmonary tuberculosis, for instance, there is no need to assume failure of clotting in order to account for severe hemorrhage, though the cessation after serum injection might be held to prove that the coagulating mechanism was at fault.

I have found no reports of series of cases of hemophilia, but the isolated cases and small groups show almost invariable success with injections of any form of serum, or local applications of fresh or powdered serum to the bleeding spot. Prophylactic injections before operation are reported as successful by Clowes.

On the whole, the evidence from the literature seems distinctly in favor of human over animal serum, except for Clowes' series. This serum powder has only lately been available for extended trial, so that reports from other investigators are not yet at hand. My own experience with it in melena has been by no means so favorable as Clowes'. I have used it in two cases apparently with no effect whatever. In the first, which I have reported, the patient was saved by transfusion after serum powder and fresh human serum had apparently failed to check the hemorrhage. Clowes' criticism (private communication), in this case that I did not use enough serum, may be justified. The second case was seen in the evening, shortly after the onset of hemorrhage, which was not at that time profuse. The baby received during the night 20 c.c. of serum powder solution and 20 c.c. of the

1. Duke, W. W.: The Relation of Blood-Platelets to Hemorrhagic Disease, The Journal A. M. A., Oct. 1, 1910, p. 1185; Jour. Exper. Med., 1911, xiv, 265; The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.
2. Schloss, Oscar M., and Commiskey, Leo J. J.: Spontaneous Hemorrhage in the New-Born, Am. Jour. Dis. Child., April, 1911, p. 276.
3. Whipple, G. H.: Hemorrhagic Diseases—Septicemia, Melena Neonatorum and Hepatic Cirrhosis, Arch. Int. Med., March, 1912, p. 365.
4. Sahli: Ztschr. f. klin. Med., 1905, lvi, 264; Deutsch. Arch. f. klin. Med., 1910, xcix, 518.
5. Addis: Brit. Med. Jour., 1910, ii, 412.
6. Welch: Am. Jour. Med. Sc., 1910, cxxxix, 800; Am. Jour. Obst., 1912, lxv, 597.
7. Clowes: New York Med. Jour., Jan. 4, 1913.
8. Swift and Green: Boston Med. and Surg. Jour., 1911, clxiv, 454.

father's serum, and died within an hour after the last injection of human serum, with symptoms of intrathoracic hemorrhage. Clowes seems not to believe that there is danger of anaphylaxis from the use of horse-serum. While I admit that this danger is slight, it seems to me sufficient to make human serum preferable, inasmuch as it seems to be at least fully as efficient.

There are at hand very few statistics containing the results of transfusion. Considering the very grave condition in almost every case in which it has been resorted to, it seems to me to have been more efficacious than any of the other methods. Several patients have been cured by it after serum injections had failed to check the hemorrhage.

Curiously little has been said by any of the writers concerning the probable action of serum or blood in checking hemorrhage. It seems to be taken as a matter of course that the blood preparation acts by supplying the deficient clot element, whatever it may be. The correctness of this assumption seems to me very doubtful. None of the clot elements are supposed to have a ferment action except the purely hypothetical thrombokinase. Definite quantities of each of the others go into the reaction, and it is difficult to suppose that the injection of relatively small amounts of serum or blood can possibly make up for any serious deficiency of any of them. It seems to me impossible that Duke can be right in supposing that the enormous increase in the platelet count reported by him after transfusion was the result simply of the addition of the platelets of the transfused blood. The amount of blood transferred by ordinary transfusion, which cannot be definitely measured, is certainly too small for this to be true. Admitting the existence and importance of thrombokinase, and assuming it to be present in any quantity in the injected serum, it might explain the cessation of hemorrhage in cases where thrombin formation is insufficient.

Another thing not satisfactorily explained by the idea of injecting a lacking clot element is that the patient is so often definitely cured. Not only is the existing hemorrhage stopped, but the tendency to bleeding disappears, and the blood soon shows normal coagulability. It is, I think, more reasonable to suppose that this effect is due to some stimulant action of the normal serum or blood on the blood-forming tissues or in the vessels. Esch has suggested that the bone-marrow is stimulated to the formation of thrombokinase. As we have no reports of the successful use of serum in cases in which any other element than thrombin was definitely proved to be lacking, this explanation might be correct. In the absence of more exact information, I prefer to suggest that the blood-forming tissues react to the stimulus of normal serum (or blood), by the formation of normal blood, and that possibly there is a reaction between normal blood and the vessel-walls, lacking in certain abnormal blood-states, which explains the complete cessation of hemorrhage. This hypothesis is vague, but something of the kind seems necessary to fit all the facts.

Such an assumption would give a reason for the apparent relative values of treatment by animal serum, human serum, whole human blood by subcutaneous injection, and whole blood by transfusion, which would not at all apply if the end to be obtained was merely to supply a lacking clot-element. Human tissues would naturally react better to human than to animal serum, to whole blood than to serum, and probably to whole blood put directly into a vessel than to the same blood injected subcutaneously, where it must partially disintegrate. I make this suggestion for what it is worth, admitting it to be pure theory, and incapable of demonstration with our present knowledge.

All things considered, whatever theory one may adopt, it would certainly seem, so long as we cannot determine at the bedside just what blood element may be needed, that there should be a wider use of direct transfusion in serious hemorrhage, because of its supplying for immediate availability all of the factors likely to be concerned; and that the transfusion should be early, rather than as a last resort after everything else has failed. The technical skill required has heretofore stood in the way of this, but recently there has been more than one suggestion of simple methods for accomplishing the operation. Crile's method is an improvement over direct suture or the older cannula methods, but is not readily applicable to the small veins of babies. Vaughan and myself[9] have described a method used by us which required no special apparatus, and which we have found to be really as easy as any intravenous injection. It consists simply in drawing blood from the donor's vein into a glass syringe and injecting it rapidly into the vein of the recipient. A small amount of physiologic salt-solution is drawn into the syringe before and after the blood, to prevent clots forming in the needle or the vein. The only requisite for success, apparently, is to have everything so prepared that one may work fast and keep within the time-limit of coagulation. We have ourselves practiced the method once since our report, in a case of septicemia, and Rowland (private report), used it without difficulty and with remarkable results in a case of severe melena with bleeding from the cord, mouth, and numerous areas in the subcutaneous tissues. Pope has recently described a method used by him on laboratory animals which he says is very easy. Freund, working with the anemias, has recently developed an improvement (unpublished), on our syringe method, by which he was able easily to transfuse 140 c.c. in a few minutes. The apparatus consists of a syringe connected by a Y and short rubber tubes, with two needles. At the branching of the Y is a two-way valve, and connected with the proximal branch of the Y is a tube, with stopcock, for salt solution. The needles are inserted into the veins of the donor and recipient and connected with the syringe. As the blood is drawn from the donor's veins about 10 per cent. of salt solution is allowed to mix with it. Dilution in this way with about 10 per cent. of saline solution prolongs the coagulative time considerably. The valve is turned and the diluted blood is injected into the patient. This procedure may be repeated, 20 c.c. at a time, almost indefinitely, with no apparent danger. Either of these syringe methods is as simple, and probably as safe as ordinary intravenous injection, and they have the additional advantage over ordinary transfusion methods of being quicker, as the positive suction and pressure of the syringe make it possible to transfer the blood much more rapidly. Moreover, it is possible, working by either of these methods, to interrupt the procedure at any time, and renew it at pleasure. With former methods, the difficulty of the operation and the sacrifice of the vessels which is involved, required one, in order to be sure of going far enough, to carry it often to very tedious lengths. The amount really necessary to be injected sometimes proves to be very small. Rowland, for instance, could see almost immediate results from 8 c.c., and was not obliged to use more, but with any other method he would have felt compelled to go a good deal further before breaking the connection between the vessels.

9. Cooley, Thomas B., and Vaughan, Walter: A Simple Method of Blood-Transfusion, THE JOURNAL A. M. A., Feb. 8, 1913, p. 435.

It seems probable, from a perusal of current medical literature, that human serum or blood is to be used, or at least extensively experimented with, in the treatment of a variety of conditions aside from those I have spoken of. Already they are being tried in the anemias, and in pediatrics there are favorable reports of human serum in grave nutritional disturbances. In all of these, it is possible that human blood injected intravenously might be of more use than serum. The purpose of this paper is to urge that simplified transfusion be given a more extended trial, especially in melena, which is one of the most serious conditions with which we have to deal; and that it be used as a first rather than a last resort.

CONCLUSIONS

1. Blood therapy of some kind is the best remedy we have for hemorrhagic conditions.

2. In hemophilia blood-serum seems to have a specific action so far as checking the hemorrhage is concerned. It may be used as a prophylactic measure, as well as to stop existing hemorrhage. Fresh human serum is probably to be preferred.

3. In purpura, melena, and other toxic conditions, in which various blood elements have been shown to be lacking, none of the serums are always effective, and there are good theoretical and clinical reasons for believing that whole blood should be preferred, not only to stop hemorrhage, but for a possible curative effect on the underlying disease condition.

4. Transfusion is not really a difficult procedure. It is deserving of extended trial—not as a last resort, but as the first treatment in any of the hemorrhagic diseases of toxic nature.

NOTE.—Since this paper was read, Freund has published a description of this method (*Jour. Mich. State Med. Soc.*, September, 1913, xii, 459).

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ABSTRACT OF DISCUSSION

DR. V. D. LESPINASSE, Chicago: I have treated ten cases of hemorrhagic disease of the new-born by direct transfusion of blood. Some of these cases had been treated previously with various serums. Among the ten cases there were but two deaths; both patients were weak syphilitic babies. The cases were of all grades of severity from a comparatively mild to a very severe form. The most desperate case was that of a child born on Thursday at midnight. It started to bleed from the bowels on Saturday at 6 p. m. While being taken to the hospital the child vomited blood. It was transfused at 9 p. m., three hours after the discovery of the hemorrhage. While I was dissecting out the vein, the pulse stopped and the heart was neither audible nor palpable. Fifteen seconds after the blood began to flow into the internal jugular vein, the heart began to beat and the child recovered. The child was in the hospital one week and gained an ounce a day in weight. It is now alive and well. In transfusing these cases, I do not know how much blood is put into the vascular system. I transfuse until the children are red as in scarlet fever. When the operation is begun the babies are pale. If we allow the blood to flow in too rapidly the baby becomes bluish. If this occurs, the flow of blood should be stopped temporarily. When the baby's skin is a decided red, the anastomosis between the two vessels is cut and the vessels ligated. The effect on the babies is immediate and prompt. The hemorrhage stops at once and does not recur. I should like to emphasize the point that Dr. Cooley made, that transfusion is the best treatment for hemorrhagic disease of the new-born, and should be used early. I should also like to emphasize the fact that it is never too late to save a baby by transfusion, so long as there is a flutter in the heart; even if the heart has stopped for a few minutes, there is a chance to save the baby by a transfusion properly done.

DR. H. M. MCCLANAHAN, Omaha: The remarks that I have to make are in the interest of the doctor in the small town who does not have modern facilities. I am glad that Dr. Cooley made the distinction between hemorrhage in the new-born and hemophilia. By hemorrhage in the new-born I believe he means spontaneous, not traumatic, hemorrhage.

Within the past year I have had five cases of hemorrhage in the new-born. In these cases I have recommended the use of antidiphtheritic serum, using a serum with a low number of antibodies. I have personal knowledge of three cases in which the hemorrhage was evidently sufficient to cause death, although I do not believe that these infants die from actual loss of blood, but from that condition which causes the loss of blood, and I believe that antidiphtheritic serum is an excellent remedy. It is not so good as transfusion, but in the small towns it is a good substitute.

DR. JULIUS HESS, Chicago: The thing which has interested me most is the evolution of the medication in the hemorrhagic conditions. At first most of us used diphtheria serum without further thought. Following that a normal horse-serum was put on the market and we used that. Then came anaphylaxis. Then we used rabbit's blood, and eventually adopted the simple method of drawing a small quantity of a 10 per cent. sodium citrate solution into the barrel of the syringe, taking from 10 to 15 c.c. of blood from the vein of the mother and injecting the mixture directly into the vein of the child. Theoretically there are some reasons why we should not use sodium citrate. The results with this are as good as with horse-serum, and its use has obviated the dangers of anaphylaxis.

DR. OGDEN M. EDWARDS, JR., Pittsburgh, Pa.: This is a serious condition which occurs in children at the beginning of their lives. The treatment at present is not satisfactory, as Dr. Cooley says. The use of serum and of some of the preparations of blood is the best treatment we have to-day. We shall never get the proper treatment for all of these cases until the etiology of these conditions has been discovered. We probably have a right to believe that these are different conditions, having one thing in common, spontaneous hemorrhages, and that there are different causes for the hemorrhages. If we could find these different causes we should get at the treatment better. Some hemorrhages may be due to infection, as has been suggested, but whether or not infection is the etiologic factor we are unable to say. Some of them are associated with syphilis, but we are not able to say whether or not that is the cause. Certainly we know that some of these children are not syphilitic.

The suggestion by Evarts Graham is interesting; that lack of proper oxidation existing in the mother before the child is born may play a part in the production of these conditions. He has brought about a change in animals experimentally by producing a lack of oxidation in the mother.

The etiology of these conditions is still unknown, however, and the treatment, therefore, will never be on satisfactory grounds until these hemorrhages have been differentiated according to their etiology. Some of the patients recover with serum and blood preparations, and some do not.

DR. H. LOWENBURG, Philadelphia: I should like to report a case of hemophilia in a 2-year-old child. His mother's brother died of uncontrollable hemorrhage following a slight injury, and his own brother succumbed to this same condition. This boy bit his tongue and had been bleeding for two days when I saw him. He was very anemic and restless. He responded promptly to two injections of horse-serum given at 7 p. m. and the following day at about 10 a. m. A point of interest that this particular case illustrates is that probably a permanent cure is not produced, because about five or six months later this boy suffered a slight trauma of the hip, which was followed by extensive ecchymosis. There was no break of the skin, and the ecchymosis was five or six weeks in disappearing.

DR. C. BROOKS, Pittsburgh, Pa.: I have for some time been interested in the technic of transfusion. Almost two years ago I suggested the use of a syringe to transfuse blood in infants. Since I located in Pittsburgh Dr. Edwards has

spoken to me about some cases in which transfusion by the union of blood-vessels failed. I suggested that we try to work out some simple methods of transfusion. I am gratified to learn from the discussion here to-day that a good many simple methods have already been used. For instance, Dr. Cooley's method, in which he used a syringe with an ordinary needle and a method of drawing the blood in at one side, and throwing it out from the other with a "Y" shaped connection, is doubtless a good one.

Dr. Edwards and I have a method which we think more certain of success and more easy of use than any method yet discovered.

I think that all physiologists will agree that it is best to use for transfusion the normal blood. That is the least dangerous. Defibrinated or salted blood are departures from the normal. From theoretic considerations, however, the least objectionable salt to use for that purpose would be sodium oxalate. We have performed some experiments on animals, using this salt. It works very well. We draw into the syringe about 0.5 c.c. of a 1.0 per cent. solution of sodium oxalate and then draw the syringe full of blood. When this is done it will not clot. The needles which we have tried on animals are fashioned so that when once inserted they will not come out, neither will they cause laceration of the wall of the vessel.

I think that Dr. Cooley is right—we should not necessarily call in a surgeon to do transfusions. Those living in the country cannot always get a surgeon. They must go ahead and do the simplest transfusion possible. If they employ this syringe method, they will know how much blood they are transfusing. Some surgeons tell me that when they use the more complex methods they are not certain how much they transfuse, or indeed, whether or not they transfuse any blood at all. Apparently the right tendency is toward a simple method and toward the use of a syringe with the trocar cannula needle.

DR. T. B. COOLEY, Detroit: In regard to the blood necessary for transfusion, Dr. Lespinasse has said that in direct anastomosis methods it is advisable to transfuse babies until they are red. In the case reported, the child was practically dead when we started. We used altogether 20 c.c. of blood, with salt solution between the blood injections. We did not carry transfusion anywhere near the point of redness of the child. The child was still pale, but we could see a definite improvement; the pulse was becoming stronger and we felt safe in waiting; we knew that we could transfuse more blood at any time. The child did well. As regards transfusing blood slowly, we used injections of salt solution between the injections of blood. Maybe, if we had put in one blood injection after another, we should have gone too fast.

The point that I was especially anxious to make was that the doctor in the small town can do transfusion with one of these simple methods. It is a thing anybody can do who can dissect out a blood-vessel.

Nobody answered Dr. Hess' question about anaphylaxis. I have been unable to find any reports about anaphylaxis from the use of antitoxin in this way. Those of us who use diphtheria antitoxin extensively know that the proportion of anaphylaxis is slight. When horse-serum has been used in a large number of hemorrhagic cases, we shall probably hear of some cases of anaphylaxis.

There is one thing quite evident in regard to the etiology of nearly all of these conditions—they are the result of toxemia of some kind. Toxemia resulting from lack of oxygen is certainly a possible cause.

I was careful to except hemophilia from the conditions in which one gets a permanent cure.

I do not think that the addition of oxalate to the blood is necessary or desirable to prevent the blood from coagulating. If one can delay coagulation of the blood a little time, that is all that is necessary. If we are sure of our technic we can do this without any other assistance.

Dr. Brooks' needle is much like one which Dr. Vaughan and I made, although we decided that it was not absolutely necessary to have a special needle.

THE NATURE, DIAGNOSIS, PROGNOSIS AND TREATMENT OF GENERAL PARESIS*

CHARLES R. BALL, M.D.
ST. PAUL, MINN.

The honor of having first discovered a relationship between paresis and syphilis belongs to Esmarch and Jessen. These observers in 1857 reported three cases of paresis, the cause of which they attributed to syphilis. Thus a controversy of this subject began which has lasted for more than half a century. The consensus of medical opinion has held that in the great majority of cases syphilis is the chief etiologic factor which causes paresis. Of the opponents of this doctrine Näcke was the most extreme. He considered a neuropathic inheritance as a most important cause and assigned to syphilis an equal importance among other etiologic factors, maintaining that it often furnished the last offense for the development of the disease. It was not until the discovery of the Wassermann reaction and its regular observance in both the blood and spinal fluid of paretics that the doctrine of no syphilis, no paresis, could be said to have found universal acceptance.

Until recently parasyphilis has been regarded as an effect of syphilis, the ashes of a fire which long ago has burnt itself out, the result on the nervous system of a toxin which might be compared to the action of the toxin of diphtheria in diphtheritic paralysis, when the exciting factor, in both instances, had passed away, but the harmful influence still acted in a progressive manner.

A number of reasons may be given why we have so persistently refused to accuse the spirochetes of occupying the chief rôle in the causation of the symptoms of paresis. The apparent absolute inefficiency of antispecific treatment, the fact that the pathology of paresis was said not to be the pathology of syphilis and the failure to discover the spirochetes in the tissues of the central nervous system are the chief reasons. Since the discovery of the Wassermann reaction, however, and its positive finding regularly in paresis, the suspicion has steadily grown that the *Spirochaeta pallida* is actively and directly concerned in paresis. Plaut calls attention to the fact that a paretic behaves with reference to the serum reaction similarly to a syphilitic in the active stages and not as a tertiary luetic without symptoms. This indicates, according to Plaut, a more active participation of the spirochetes in paresis than was formerly thought. He believes that there is a close relationship between the activity of the specific virus and the Wassermann reaction. Nonne says that occasionally the blood of a paretic may give a negative Wassermann and that rarely also all four actions may be negative in tabes. These results usually occur, however, in exceedingly long-standing and chronic cases after the active process and progression of symptoms have long since terminated. This observation of Nonne's would seem to support Plaut's contention.

The fact that active syphilitic processes in the nature of gummata and specific endarteritis are found both in paretics and in tabetics also argues for a close connection between the spirochetes and paresis. Recently E. Meyer[1] has reported a case of syphilitic meningomyelitis

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Meyer, E.: Progressive Paralyse kombiniert mit Meningo-Myelitis marginalis, Arch. f. Psychiat. u. Nervenkrankh., L, No. 1, p. 245.

occurring in a paretic. The active syphilitic process in the cord was healed by antispecific treatment, as the post-mortem later demonstrated.

The pathology has been one of the strong arguments against regarding paresis as a late syphilis. On this question Spielmeyer[2] says that, although the pathology of paresis is a characteristic one and differs materially from the pathology of cerebral lues with which we are familiar, we cannot say that it is no longer a syphilitic process. He argues that as we are unable to say with certainty what pathologically belongs to syphilis, therefore we surely are not justified in saying that certain processes are non-specific in character. Primary parenchymatous degenerations can just as easily be caused by syphilis as specific cellular infiltrations. Nissl takes a somewhat similar position. Thus according to these observers we are not able to state positively that the pathology of paresis may not also be the pathology of syphilis.

The inefficiency of antispecific treatment has been another important reason why the diseased processes of paresis have been regarded as of a different nature from those of lues. The tendency to exclude syphilis when a disease failed to respond to antispecific therapy has been too general. We have known for some time that certain specific processes are often refractory to treatment. Nonne[3] says that the general medical opinion in regard to the success of antispecific therapy is too optimistic. Spielmeyer suggests as an explanation of the failure of antispecific therapy the impermeability of the meninges. A large number of experiments have been made and from these it has been demonstrated that mercury and iodin, under normal conditions, are unable to penetrate the meninges. The difficulty exists in paresis and tabes. This author says that perhaps the inadequateness of our present methods of treatment in not being able to pass through the meninges may be largely responsible for the failure of this treatment in paresis.

Recently Noguchi[4] has examined the brains of a large number of paretics. Out of 200 examined he has been able to find the spirochete in forty-eight, and in the spinal cord of one tabetic out of twelve examined. He found the spirochetes more numerous and more frequent in the brain cortex than in the white substance. They were distributed between the nerve-cells and the neurogliar tissue. In some instances the parasites were found in the nerve-cells. In those cells containing the spirochetes evidences of degeneration in the form of distortion and swelling, as well as the complete dissolution of both the nucleus and the cell-processes, were discovered. Noguchi, in connection with the report of his examination, says that the pathogenesis of paresis was never entirely free from objection. Since, however, the causal factor of syphilis has been found in the pathologic changes, one may well assume that these changes are directly due to the *pallida*. He characterizes the brain changes as a chronic parenchymatous encephalitis produced by the invading spirochetes. He suggests that the fact that treatment thus far has proved so futile may be explained by the circumstance that the parasites lie in the nervous parenchyma away from the blood-vessels and are inaccessible to the medication. Confirmation of Noguchi's discovery by other observers is all that is lacking in order to bring about a complete reconstruction of our former ideas concerning the nature of metasyphilis. This must all deeply affect the whole subject of paresis. It increases very much the importance of diagnosis and particularly of an early diagnosis. Kraepelin[5] says that it is often very difficult to determine the actual beginning of the affection. A number of years may intervene between the observance of such symptoms as transient attacks of double vision, dizziness, temporary aphasia and unconsciousness and the real development of the paresis. He reports two cases in which there was an interval of six years between the observance of such symptoms and the beginning of the paresis. I can recall one case which came under my observation with symptoms of dizziness, loss of the pupil light-reaction and occasional attacks of unconsciousness in a patient with a luetic history four or five years before sufficient mental change had occurred to make it necessary for the patient to give up his regular work. When should the diagnosis have been made in this case, at the time of the first attack of unconsciousness or four years later when the paresis was well advanced? It is interesting and, in the light of our recent knowledge, very important to know how far back we may date the real origin of the paresis with a history of such symptoms as those mentioned.

Another interesting and practical question is, if this case had been regarded as paresis when the first symptoms appeared, would active and persistent antispecific treatment, such, for instance, as the chronic intermittent, or the intensive along the lines proposed by Dreyfus and Gennerich, have exercised a restraining and beneficial influence on the later course? It must be acknowledged that the only difference between tabes and paresis exists in the location of the pathologic process. Because of the larger brain-area and, therefore, greater capacity for compensation, the prognosis for the brain-process ought to be better than for the one in the cord. In regard to the influence of antispecific treatment in tabes, Nonne says that for many years he has had a large number of cases of beginning tabes under observation in which the disease had apparently been brought to a standstill by means of regular courses of inunctions. Because of the peculiar anatomic structure of the cord, beginning lesions there would naturally cause much earlier significant symptoms than corresponding processes in the brain. On account of the so-called silent areas in the brain, extensive lesions may exist without manifesting any symptoms. Failure to recognize the nature of early symptoms before the diseased processes have become too extensive may be another explanation why antisyphilitic treatment has proved so ineffectual in paresis.

During the past two years it has been my practice to make a Wassermann examination of the blood in every one of my hospital patients. If the Wassermann was found to be positive and the patient exhibited any nervous symptoms, no matter how slight in character, I then made a lumbar puncture and tested the three reactions. With positive findings the interpretation of even slight psychic symptoms becomes easier. With the modern diagnostic methods a much earlier diagnosis of paresis becomes possible, and the importance of this, in the light of recent additions to our knowledge, is greatly increased.

2. Spielmeyer: Die Behandlung der progressiven Paralyse, Arch. f. Psychiat., L, No. 1, p. 76.
3. Nonne: Syphilis and the Nervous System, American edition.
4. Noguchi, H.: Studien über den Nachweis der Spirochaete pallida im Zentralnervensystem bei der progressiven Paralyse und bei Tabes dorsalis, München. med. Wchnschr., April 8, 1913, p. 737.
5. Kraepelin: Psychiatrie: Die Dementia paralytica Verlauf; Ausgang, Ed. 8, II.

Nonne, in his book, "Syphilis and the Nervous System," says that a genuine paresis was formerly considered incurable, but that this opinion at the present time cannot be unqualifiedly maintained. Schüle reports a case of undoubted paresis with recovery after an attack of double pneumonia. The patient remained well twenty years. Many other similar cases have been reported. The tendency among medical men to give an absolutely bad prognosis in paresis as soon as the diagnosis is made has been too general. It has been estimated that 10 per cent. of all cases undergo remissions of variable duration, and from 0.5 to 1 per cent. complete and long-continued remission. I remember that several years ago, after treating a case of paresis for a number of months, I gave a bad prognosis to the family and insisted that the patient should be sent to a state institution. Under osteopathic treatment in the course of six weeks the patient so far recovered that he was able to return to work. His remission lasted just about a year. Such remissions are not uncommon and they may come at any time. In this connection the case reported by Tuezek is worthy of mention. The patient, in 1876, when 38 years old, manifested typical symptoms of paresis, which in 1878 disappeared. In 1883 he developed tabes without any psychic symptoms, which gradually progressed. In 1898, twenty years after the beginning of his disease, he again exhibited symptoms of mental confusion and excitement along with mental enfeeblement, which two years later caused his death. According to Nissl, who made the necropsy, the pathology of the cortex was that of paresis. This case illustrates well the truth of the old German medical *Sprichwort*, "die Syphilis stirbt nicht, sie schläft nur." In making a prognosis in paresis one should always keep in mind the possibility of remissions.

During the last few years considerable effort has been made to find a suitable treatment for paresis. It has been recognized for a long time that fevers, infections and suppurations, such as pneumonia and erysipelas, often exercise a most favorable influence on the affection. There are many observations in which the disease has been brought to a period of quiescence through such intercurrent affections. According to Metchnikoff the important factor in exerting this beneficial influence is the leukocytosis caused by infections of this kind. Wagner's tuberculin treatment, the injections of mixed cultures of dead bacilli and sodium nucleinate, first suggested by Donath[6] of Budapest, were proposed for the purpose of artificially creating this leukocytosis. For two years I have been using injections of sodium nucleinate in cases of paresis under my care. The sodium nucleinate was given in the following manner: Two and one-half gm. of the drug were dissolved in 100 c.c. of normal salt solution made from distilled water and sterilized. The injections were administered weekly. Forty c.c. were given at the first injection and the quantity was increased each week by 20 c.c. until 100 c.c. had been injected. Then the weekly dose was further increased by adding 0.5 gm. of the sodium nucleinate to the solution until the maximum dose of 5 gm. was reached. All of the injections were made into the muscles of the nates. In the eight cases so treated, the four reactions were taken at the beginning of the treatment in each case and then again at various intervals during its course. A leukocyte count was also made before and after the injections. At different periods during the treatment an intravenous injection of salvarsan was alternated each week with the sodium nucleinate. The influence of the treatment on the four reactions was somewhat irregular and uncertain and did not always correspond with the clinical symptoms of the patient. For instance, in one case after the salvarsan injection the positive Wassermann in the blood became negative while the condition of the patient was growing worse. In general the effect of the treatment was to lessen the intensity of the reactions. The reactions in the spinal fluid were not influenced to so great an extent as was the blood-reaction. In none of the cases did any of the three reactions in the spinal fluid become negative. From one to two hours after the injection the patient usually had a chill, which was sometimes very severe. This was followed by a rise in temperature, the temperature often going as high as 103 and 104 F. Usually the temperature became normal again in from twenty-four to forty-eight hours. The number of leukocytes was always increased after these injections, sometimes being twice the number they were before twenty-four hours after the injection. In two cases rather severe suppuration and abscess formation followed the injections. In one case there was a rise of temperature for two weeks as a result of an abscess. In this case at present there is a complete remission. All of the eight cases were well advanced. Two of the patients in this series of cases manifested no improvement whatever, but grew steadily worse. Two had short remissions, one of a month's duration, the other of four months, complete enough so that they were able to return home and care for themselves, but not able to resume their occupations. Two patients who showed considerable improvement are still at home and have been for more than a year. One of these had exceedingly severe symptoms. He was confined absolutely to bed, frequently had involuntary urination and stools, had to be fed by tube and did not speak for several months. While in the hospital he developed severe decubitus. This patient received three salvarsan and twenty sodium nucleinate injections. His remission came rather suddenly. One day he simply waked up—like Rip Van Winkle—and began to talk and manifest an interest in things around him. From being an animal that was just alive, he became something of a human being, clean in his habits, and able to make his own toilet and to go down town and to church alone. His mind was free from delusions, but somewhat enfeebled. A recent letter from his wife states that he is not so well and she fears that he will have to be placed in the hospital again. The other patient received twenty-four injections of sodium nucleinate, after which he returned home in very fair condition. He remained quite well for six months, then suddenly had a severe attack of convulsions, following which he lost his speech entirely. He was returned to the hospital and this time received three salvarsan and eight sodium nucleinate injections of 5 gm. each, the last injection being given in December, 1912. An inquiry, May 1, regarding his condition, elicited the information that he had not been so well mentally and physically for years as he is at present. Of the eight patients treated, two are dead, two are in one of the state institutions and four are still at home. Of these four, the mental condition of two is that of a rather moderate simple dementia. The mental and physical health of the other two is excellent.

This treatment, according to the results which I have obtained, cannot be said to be a great success. It seems,

6. Donath: Salvarsan in der Behandlung der syphilischen und metasyphilitischen Erkrankung des Nervensystems und dessen kombinierte Anwendung, München. med. Wchnschr., Oct. 22, 1912, Seite 2342

however, to have exercised in varying degree a favorable influence in all the cases with the exception of two. Since the discovery of the Wassermann we have been saying no syphilis, no paresis. We are now able, since the finding of the spirochetes in the tissues of the brain and spinal cord, to go a step farther and say, no spirochetes, no paresis.

These recent contributions to the subject of metasyphilis have taught us especially two things; first, the nature and location of the enemy; second, the great importance of an early diagnosis, if we wish to have a reasonable hope of destroying him.

Lowry Building.

ABSTRACT OF DISCUSSION

DR. C. EUGENE RIGGS, St. Paul: The discovery of the *Spirochaeta pallida* in the brain of the paretic has been the signal for the passing of parasyphilis. There is not the slightest question, I believe, but that paresis is nothing more nor less than a phase of syphilis due to the direct action of the spirochete. I do not mean to convey the idea, however, that the pathologic process in syphilis is the same as that in paresis. In syphilis we have endarteritis, gumma and meningitis; in paresis we have degeneration of the neuron tracts of the spinal cord and of the brain. Why in the one instance we have a degenerative process and in the other a syphilogenous process is a question hard to explain. Possibly the personal equation has something to do with it, or a special toxicity of the spirochetes. Mott cites an instance in which one woman infected five men and every one of those men had paresis. As Dr. Ball has said, we are dealing with a syphilitic process, with the direct influence of the *Spirochaeta pallida* on the nervous system. This gives us a reasonable basis for the use of salvarsan in these cases.

In referring to the early stages of paresis, in which we have vertigo and epileptiform and apoplectiform attacks, Dr. Ball asks whether these symptoms indicate paresis or nervous syphilis. This is a question. The indication is certain, however, for the use of the appropriate remedy in a positive, definite way.

Dr. Ball speaks of a remission of twenty years in one case. There are instances reported of even longer remissions. In referring to the question of recovery he was careful in choosing his words. I think that this is extremely questionable, because if a really degenerative process once takes place, the degenerated tissue cannot be repaired.

DR. S. S. GLASSCOCK, Kansas City, Kan.: There are undoubtedly some symptoms of beginning paresis that we have overlooked. In the future we shall be able, though these symptoms be ever so insignificant, to make an early diagnosis of paresis, and, by the use of salvarsan, or some other remedy to be developed later on, to treat these cases at a time when we can cure them. I am inclined to think that this knowledge will stimulate among men who have had syphilis the idea that just as soon as they have any nervous manifestations they should see a man competent to make the diagnosis. Possibly, moreover, if they have not the symptoms of the disease, and these examinations are made, we may be able by the use of salvarsan to eliminate from the system the spirochete, by that means ultimately eliminating locomotor ataxia and paresis.

It would be well for us to consider in regard to salvarsan whether or not arsenic, even though it be in a non-toxic form, given in large doses or administered repeatedly in these cases of syphilis, may not ultimately (when a period of years has passed and paresis or locomotor ataxia may be expected to develop) because of its toxic properties have so profound an influence on the nervous system that this will tend to increase the number of cases of paresis and locomotor ataxia instead of decreasing them.

DR. LAWRENCE B. PILSBURY, Lincoln, Neb.: We are badly in need of a critical test for paresis, especially in the early stages. At present I happen to have under my care a man about 65 years of age who came to the hospital with a history of some loss of judgment and some disturbance of emotion. He was jealous of his wife, probably unjustly so, and had a coarse tremor in both hands and a shuffling gait, holding his head forward, but with no definite tendency to propulsion or retropulsion. I felt doubtful as to what I was dealing with until I performed lumbar puncture. Both blood and spinal fluid gave a positive Wassermann reaction. There were 130 cells and increased protein in the fluid. He now has a coarse tremor of about four per second. I suppose that it is a case of paresis. The symptoms began only some six or eight months ago.

Another case was that of a man about 35 years of age whose case I reported to a medical society as typical of paranoid dementia with grandiose delusions pretty well systematized and fairly constant. At that time I could discover no motor symptoms and no physical findings that would lead one to think that he had paresis, but I will admit that I did not puncture him as I should have done. Later on I punctured and found an increase in cells and protein. He now has a slight inequality of the pupils, and his face has flattened out somewhat, with just a mere suggestion of tremor of the facial muscles. He is neat and clean and industrious on the ward.

Another case was that of a man of about 44 years of age who was formerly in the hospital as an undoubted case of manic-depressive insanity in the depressed phase. Twenty years ago he recovered and went away. He had a manic-depressive family history. One of his sisters is in the hospital now and has been there repeatedly. A year before he came to the hospital the last time an internist diagnosed the case as paresis. I thought he was mistaken and so stated to the patient and his friends. The patient had a well-marked hypomania and there was no amnesia that could be discovered. I punctured him at that time and failed to find any increase of cells, but discovered a slight increase of protein, which I disregarded. Later on I punctured him again and found an increase of both cells and protein. The pupils were definitely unequal and unequally responsive to light. They became so rather suddenly, for I had examined him from time to time.

DR. ALBERT E. STERNE, Indianapolis: Of course, we all recognize metasyphilis as syphilis, and the condition should be treated as syphilis as early and as vigorously as possible. From some remarks that have been made one would infer that the pathology of paresis is confined to the nervous system. It is chiefly in the nervous system as neurologists see it, but there is scarcely an organ in the body that is not involved. In quite a number of cases, moreover, we find that the condition involves the central nervous system preëminently. These changes we meet in syphilis. I believe that Dr. Riggs remarked that in metasyphilis we have no endarteritis, but to this I do not agree; the secondary changes never could be influenced by the specific treatment so far as we know at the present time. Again, we must consider as coming under this category those cases of paresis which run a clinical course quite different from those that we usually see—those cases in which mental symptoms are manifested, cases of progressive dementia, without the usual euphoria, and without delusions, cases, so to speak, that fade away with almost perfect recognition on the part of the patient that he is sick. Ordinarily by the term "metasyphilis" we designate only cases of paresis, but etiologically it is of importance in other organic psychoses. We are now engaged in a careful examination into the rôle of syphilis in the development of dementia praecox, and I am anticipating a report to be made next week at the meeting in Chicago in which we shall show a positive etiology of syphilis in about one-third of the cases of clinical dementia praecox. It seems to me that in these cases, as in syphilis, we should not neglect the mixed treatment. While we may rely to a considerable degree on salvarsan, we should never neglect the adjuvant treatment which we have always used. This treatment, moreover, especially in paresis, should be given with a great deal of caution, as in my experience the use of salvarsan in these cases is not without danger. In some cases we are now using serosalvarsan, that is, blood-serum plus salvarsan, by intraspinal injection. The results are as yet too prob-

lematic to offer more than encouragement to the continuation of this particular type of treatment.

DR. A. L. SKOOG, Kansas City, Mo.: I would question the statement, "No syphilis, no paresis." Possibly reactions have not always shown up positively. There is a certain small percentage of cases in which tests give negative results. Investigators have, as stated, found spirochetes in less than 25 per cent. of cases of paresis. So this can hardly be used as a strong argument. Clinically, however, I believe that all patients with paresis originally suffer directly or indirectly from syphilis.

DR. GEORGE A. MOLEEN, Denver: I would call attention to a point brought out by Dr. Pilsbury, which seems to have caused some surprise on the part of writers in the foreign journals: the question of isolated syndromes, such as the slow tremor. A case mentioned in the *Revue neurologique* (1911, xxii, 123) was taken to be one of paralysis agitans. In my own experience, a man presented a tremor, confined to the right hand, which could hardly be mistaken for anything but paralysis agitans. He presented little mental disturbance and later developed some mild persecutory ideas, as a result of which he was placed in a general hospital and observed. The tremor has continued and his mental condition has been limited to the persecutory ideas, but within the past two weeks he had a very typical apoplectiform seizure, and I think that there can be no question as to the diagnosis of paresis. The pupillary retardation could be determined only if compared to the reaction of distance, and that is often the case with those symptoms which one might consider as part of the syndrome. I think the pupil should be studied by comparing the rapidity of its reaction to light with that to convergence. Since seeing the case reported in the foreign literature, however, and hearing Dr. Pilsbury speak of it, I am reminded of my own, and thought best to recall the case here as presenting symptoms which sometimes lead to error in the making of a diagnosis of paralysis agitans, when the patient might have beginning paresis as indicated by such an isolated symptom. In my case there had been a positive Wassermann, and besides, there was a distinct, clear history of luetic infection ten years previously, treated for two years by a competent internist.

DR. E. E. SOUTHARD, Cambridge, Mass.: If I am not mistaken we have a similar case at the hospital at present. The patient has the signs in general of paralysis agitans except tremor of the right hand. He had a positive Wassermann reaction, with a total negative finding.

In this connection I might say that at the Psychopathic Hospital statistical data show something that I should like to have explained. We have been making a monthly count of Wassermann reactions up to 31.5 per cent. in a class of cases which are perhaps a little different from the ordinary cases. In the state hospitals of Massachusetts 22 per cent. of positive Wassermanns were found in the total count of the hospitals, including paresis and all the other cases admitted. In a good many cases of dementia praecox we shall, I believe, find that we have had a positive Wassermann reaction. Whether this indicates any etiologic relationship between the *Spirochaeta pallida* and the dementia praecox is dubious. Dermatologists used to say that about 15 per cent. of their infirmary practice was specific. This has to be taken into account when we draw conclusions as to the relation of the Wassermann reaction to paresis. We do not feel that there are any exceptions to the positive Wassermann in syphilis. It has been shown that cerebellar sclerosis is not incapable of making a condition resembling that of general paresis, which may account for the few cases in which it has been absent. In a series of forty-one cases studied, two were cases of cerebellar sclerosis. There might have been positive Wassermann reactions in those cases.

The spirochetes certainly do not inhabit the neighborhood of the vessels, and while this organism may not be responsible for all the lesions in paresis, the localization of the lesion in the brain in paresis would seem to favor this idea. One wonders, of course, whether in various other diseases the symptoms may not be due to death of the spirochetes rather than to any factors connected with the living organisms. In one case the effects were traced to the cerebrospinal sheath. Pain occurred as a result of treatment in a patient in whom pains had never before occurred. We wondered, therefore, whether this result might be due to toxic elements, or to the killing of the spirochetes. One must take into account the endotoxic results of the killing of the organisms by salvarsan. Some of the results of the so called provocative injections of salvarsan may be due to these endotoxic effects, the spirochetes being killed by the provocative dose, as the result of which there are symptoms which may then be succeeded by an improvement.

DR. W. W. GRAVES, St. Louis: I have long held the opinion that without syphilis there is no paresis and no tabes. That conclusion is based on the observation of others and also on personal experience, extending over a number of years of observation not only of syphilitics whom I treated many years ago, but also of their wives and children. Not only do almost 100 per cent. of Wassermann reactions on the blood in paresis lead to that assumption, but the clinical signs also, which are invariably present when associated with laboratory signs, cause us to come to the same conclusion. During the past three years I have endeavored to recognize, if possible, by microscopic and other means, the virus of syphilis, and I shall be able to present at this meeting some evidence along lines showing that it is possible to infect rabbits with the virus of syphilis direct from the blood of general paretics.

There is one other point to which I should like to refer, one I have observed not infrequently in connection with the Wassermann reaction in general paresis. It is known that a certain number of paretics will give a negative Wassermann. This finding seems to depend somewhat on the time the Wassermann test is made; if immediately following a paretic attack, or during or coincident with the attack, the reaction will not infrequently be negative, while if made during the remission the reaction is almost invariably positive. I interpret the phenomenon in this way: The system is so overwhelmed by the sudden development of the ever-present virus that antibodies on which the Wassermann reaction in all probability depends are not produced, and hence it happens that negative reaction may be obtained even in general paresis.

DR. CHARLES R. BALL, St. Paul: From a close observation of the cases reported, and most of them I have had an opportunity to observe over a number of months, it is my impression that the injections of sodium nucleinate exert a much better influence on the symptoms than either salvarsan or mercury. The patient who received the largest number of salvarsan injections—eight in all—after a short period of improvement rapidly grew worse. The two patients, who at present, except for their somatic symptoms, are apparently well, have resumed their former occupations. Both of these patients I am still keeping under antispecific treatment during this period of remission. It will be interesting to know what the influence of antispecific treatment will be during this period.

New York Infant Mortality to July 19 Compared with 1912.—According to the statistician of the New York Milk Committee, for the entire city, to July 19, 1913, there were 76,175 births against 74,597 for the corresponding period last year, an increase of 1,578. The total deaths, all ages, were 44,058 against 42,799 for 1912, an increase of 1,259. Deaths under 5 years were 12,115, against 12,005 for 1912, an increase of 110. The deaths under 1 year were 7,513 against 7,729 for 1912, a reduction of 216. The diarrheal deaths were 1,100 against 1,173 for 1912, a reduction of 73. Congenital debility deaths were 2,406 against 2,423 for 1912, a reduction of 17. Stillbirths were 3,823 against 3,720, a reduction of 103 in stillbirths to date. Though it is obvious that a large number of stillbirths occurring in New York are not reported, nevertheless, the figures from the reports are valuable in showing their relation in proportion to congenital deaths in early infancy.

THE VALUE OF SANITATION AS APPLIED TO RAILWAY AND OTHER LARGE CORPORATIONS

WITH SPECIAL REFERENCE TO THE PUBLIC WELFARE *

M. CLAYTON THRUSH, PH.M., M. D.
PHILADELPHIA

All large industrial corporations have the health of a number of human beings to protect, and while the majority of them have only the health of their own employees to maintain and watch over, railway corporations, whose duty it is to transport the public safely from one point to another, have a far greater and more important problem confronting them; and during the past twenty years the management of most of our large railway corporations has been giving this subject more and more consideration. As a result, a large number of important sanitary regulations have already been introduced, some of these being voluntary, others the result of legislative enactment of the various states through which the road passes. There is room, however, for far greater improvement and development along the same lines before an ideal standard is reached. The whole country is becoming interested in sanitation, and as soon as the people as a whole realize the value and importance of sanitation as applied to every industry of whatever kind, then and only then shall we reach the ideal for which we are striving.

The greatest responsibilities in this connection rest on the medical profession of the United States, and the American Medical Association should be the guiding "spirit" which controls the medical profession, both individually and collectively, in educating the public to a full realization of the importance of sanitation on the public welfare in all walks of life and all lines of business, industry and labor. Let us all work for a national Department of Health with a representative in the President's cabinet; let us all work for more stringent state laws on sanitation and public health and, finally, let us all work for the adoption of higher sanitary regulations by all large industrial corporations.

For convenience of classification I have divided the sanitary regulations as applicable to railway corporations into twelve classes as follows:

1. *Relief Department.*—This is a form of industrial insurance which has been adopted by a large number of railroads and should be adopted by all. Each employee pays a certain amount out of his wages each month, and, in case of sickness or injury, he receives in return so much each day while incapacitated from duty. The amount varies according to the class of insurance taken out; most of the roads pay more for accident than for sickness. The taking out of this insurance is voluntary with some roads and compulsory with others; the latter plan, however, is preferable, as the employee's family should always be protected. This department has supervision of the men when off duty on account of sickness, and a medical inspector is sent to visit the man's home to note his condition and to give him a "return-to-duty" card when he is well enough to return to work. This department likewise examines all new employees and determines whether or not they are physically qualified to perform the duties for which they apply. Most railways have established a pension fund for employees retired through age, years of service or physical incapacitation, and this is under the supervision of the relief department.

2. *Efficiency Examination of Employees.*—This department should give every man in the "operating department" of the road a thorough physical examination at reasonable intervals, testing particularly the vision, the hearing and for color-blindness, as well as general appearance, heart, kidneys and lungs. This is of great importance in maintaining a high standard of efficiency, which is of advantage both in greater safety for the public and in larger financial returns for the road.

3. *Sanitary Inspection of Buildings.*—There should be a department for the systematic inspection of all the buildings of the company, including passenger and freight stations, and all shop, storage and office buildings, which should note the ventilation, plumbing, condition of diet-kitchens and rooms for the storage of food products and live stock. The drinking-water should be carefully analyzed at reasonable intervals, and proper receptacles should be provided for holding this water. The abolition of the common drinking-cup should be insisted on, and sanitary cups should be provided either free or at a nominal price. This department should include the supervision of the loading of freight-cars with foodstuffs and live stock, and also observe that proper sanitary measures are utilized to protect the health of the men employed in the various construction and repair shops of the company.

4. *Sanitary Inspection of Road-Beds.*—Inspection should be made at reasonable intervals by men properly qualified to note especially that proper drainage canals are provided at the sides of the tracks, that all tunnels and tubes are properly ventilated and also that all water courses are kept free from filth and stagnant material.

5. *Inspection of New Construction.*—All new constructive work, whether road-beds or buildings, should be done on a sanitary basis, and should be approved by this department. Whenever a new piece of work is undertaken, the camp, drinking-water, etc., should all be under sanitary regulations.

6. *First Aid to the Injured.*—This department should require every employee to be properly instructed in rendering first aid to the injured, whether passenger or employee; and each employee should be given a sanitary package containing proper materials for rendering such service, and he should be taught how to use this material. Each employee should have this package with him whenever he is on duty.

7. *Sanitary Inspection of the Rolling Stock.*—This would include the frequent inspection of all passenger and Pullman coaches, and also all freight-cars which transport live stock and perishable merchandise. All cars should be kept in a proper sanitary condition, including the diet-kitchens of dining cars. The drinking-water and the condition of the receptacles holding it are matters of the greatest importance, and only sanitary drinking-cups should be permitted. Every one who has traveled, even to a minor degree, has witnessed the uncleanly and often filthy manner in which the drinking-water receptacles on passenger coaches are filled with ice and water, this work being usually performed by the cheapest, ignorant laborer, who handles the ice with dirty and unwashed hands, often reeking with coal dirt and "smear" from off the sides of the car, which he grasps in order to raise himself to the top of the car; and sometimes his hands are contaminated with what is far worse, namely, the infectious material of some venereal disease, which is particularly common among this class of employees. The same conditions often apply to the filling of the

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

water "coolers" of passenger stations. May we not reasonably ask, "Of what value is the individual drinking-cup in protecting the public, when the water is already polluted with poisonous material?"

Of course "spitting" in all public places cannot be too strongly condemned; especially does this apply to the passenger coach of a railway train. Almost all the cooks, dishwashers and kitchen-helpers who participate in the preparation of the foodstuffs used in dining-cars and in the restaurants of our railways are colored; and the great majority of the waiters also belong to this class; it is a well-known fact that people of this class frequently suffer from tuberculosis, diseases of the eye and skin, particularly syphilis and other communicable diseases. Last December the attention of the newly elected president of the Pennsylvania Railroad (Samuel Rea) was called to the facts which are here presented. It is refreshing to note, in a bulletin issued in April, 1913, by the Pennsylvania management, the following result, and it is earnestly hoped that all railways will speedily adopt the same regulations.

Waiters Must Be Healthy

THOSE HAVING COMMUNICABLE AILMENTS MUST LEAVE

The following extraordinary precautions against the transmission of communicable diseases by the dining-car and restaurant employees have been adopted:

There is to be a quarterly physical examination of every employee who has anything to do with the preparation or serving of food. Dishwashers, kitchen-helpers, cooks and waiters must undergo an examination every three months, and only a 100 per cent. report on their physical condition will permit their remaining in the service, while those suffering from tuberculosis, diseases of the eye or skin, and any other communicable disease, may not be employed in any capacity in which they might come in contact with food; further precaution will be taken in debarring them from employment in places in which linens and tableware are kept.

Now let us consider the question of the drinking-water, another very important subject.

SURGEON-GENERAL BLUE ANNOUNCES STRICT REGULATIONS

Washington, May 16, 1913.—Four months ago notice was served on all interstate railway and steamboat carriers that the drinking-water provided by them for the use of passengers must be certified as free from anything liable to cause disease in man. Surgeon-General Blue of the Public Health Service to-day announced the promulgation of regulations relative to the certification of the water and ice furnished to passengers in interstate traffic. They are as follows:

"Samples of water and manufactured ice from each and every source of supply should be subject to bacteriologic and chemical examination at least once in every six months by the proper state or municipal health authority within whose jurisdiction the supply is obtained, or by other person or persons competent to make such examinations, and whose result will be accepted by the state or municipal health authority whose duty it is to issue certificates. Each new crop of natural ice should be examined and certified before use. The common carrier desiring a certificate of the state or municipal health authority within whose jurisdiction the water or ice is obtained should make application therefor." The Pennsylvania Railroad, as an advance step toward complying with these regulations, on May 1, 1913, ordered that all water receptacles on all passenger-coaches should be sterilized with steam at least once a week.

Pure Water on Trains

Surely this is a step in the right direction, and this whole subject is of vital importance to every human being, as we must all eat and drink at reasonable intervals. This is but the commencement of a "sanitation crusade" which I trust will spread across this whole country.

These regulations should apply with the same degree of importance to steamship companies, hotels, restaurants, clubs, pleasure resorts and in fact all places which handle foodstuffs for public consumption. It is the duty of the legislature of each and every state in the Union to adopt suitable laws on sanitation which will insure to every person within its borders pure food and drinking-water, in all public places of whatsoever character; this can be accomplished only by adopting strict sanitary regulations, comprising not only those that are herein described, but also such others as may be recommended by properly qualified health officers to meet the exigencies as they may arise.

People should protect themselves and their children and force cleanliness on careless dealers by refusing to patronize soda-water fountains, etc., where the glasses are not thoroughly washed after each use. Hasty rinsing in cold water may appear to clean the glasses, but it is only an apology. Glasses or cups with broken or rough edges present another danger.

The use of the common roller-towel in public places is just as dangerous as the common drinking-cup, and all that has been said of the latter applies with just as much force to the former. Persons should be especially careful not to use a common towel near their eyes, as dangerous eye-diseases, which may cause blindness, are often contracted in this way. An enlightened public sentiment is absolutely necessary before we can hope to eliminate entirely all these grave and unnecessary menaces to the public welfare.

8. *Supervision of Railway Surgeons.*—All surgeons of a railway system should be governed by a directing head or surgical director; they should be required to make stated reports of all duties performed, and a certain standard of efficiency should be required of them.

9. *Medicolegal Department.*—This department alone, if properly conducted, would save the company many thousands yearly. In the case of all wrecks this department should be promptly notified, and competent men should be hurried to the scene of the disaster to take charge of the injured, see that proper surroundings are provided for their care, note the extent of their injuries, and keep a close supervision of every case until a settlement is made releasing the company from further claim; or if the case goes to court for adjustment, this department would take charge of the medical testimony for the company.

10. *Supervision of Hospitals and Dispensaries.*—All hospitals and dispensaries that are conducted by the company should be properly managed, and competent surgeons should always be on duty ready to relieve the injured.

11. *Purchasing of Medical and Surgical Supplies.*—This should be done by competent and experienced persons who are familiar with the best available sources for purchasing the needed supplies.

12. *Department of Statistics.*—A complete system of records should be kept at the general office of all injuries and deaths that occur on the road, and also a complete record of each employee from the medical point of view. These facts would prove of great value at times for reference.

CONCLUSIONS

The following recommendations are applicable to all large railway corporations as the result of these observations:

1. All railway corporations should have a "department of health and sanitation," which should direct and control all matters pertaining to the medical welfare of both its employees and the public.

2. There should be an expert sanitarian in charge of this department who should be a doctor of medicine, and he should be given a suitable title, such as "director of health and sanitation." He should have the same authority in this department that the general manager has in the "operating department" of the road.

3. He should work directly in conjunction with the general manager, both being under the supervision of the president of the company.

4. There should be twelve department superintendents, each of whom should have direct supervision of a particular department as herein enumerated; and these should be controlled and managed by the medical director.

5. The director's office should be located at the general headquarters of the company.

6. The adoption of this plan would consist in consolidating and systematizing all the various medical departments of the road under one directing head or management, resulting in more efficient service with less expenditure of capital and producing a condition of greater safety and protection to the traveling public, who pay for and should receive "safe transportation under sanitary regulations."

3705 Spring Garden Street.

ABSTRACT OF DISCUSSION

DR. W. C. RUCKER, Washington, D. C.: I have a personal interest in this matter because, as chief of the division of interstate quarantine, it comes within my immediate purview. Under the law of Feb. 15, 1893, regulations may be made for the prevention of the spread of disease from one state or territory into another state or territory, or the District of Columbia. That is translated as meaning that the common carriers may be regulated in order to prevent the interstate spread of disease. The Supreme Court of the United States, in a decision rendered not long ago, decided that a common carrier—whether it was a firm, corporation or person—was engaged in interstate traffic when it carried a person, freight, or a letter that was destined for a point outside a state.

The order of May 16, 1913, which was quoted by Dr. Smith, was a set of instructions which were issued to cover Amendment No. 6 to Paragraph 3 of the General Regulations. This amendment includes the following points: In the first place, the sources of water to be used as drinking-water by passengers in interstate traffic shall be certified by the proper state or municipal health officer within whose jurisdiction it is obtained as being incapable of conveying disease, or, in other words, as not containing disease organisms. This water shall be certified once every six months. The amendment further requires certification of ice in the same manner. This ice must be examined once every six months, if it is artificial ice, and for every crop if it is natural ice. The ice shall be so handled that it shall not be contaminated with disease-producing organisms. The water-containers from which this water is dispensed to the general public shall be sterilized once a week while in operation. That regulation is being carried out. The railways and steamboats are doing their best to comply with it. One railway is spending $46,000 for the purpose of putting in tanks in which the water and ice do not come in contact. Another railway is spending about $15,000 putting in tanks that are to be filled from the roof only. That is necessary, because in many states in which the low tank is used, labels off beer-bottles, nipples off of nursing-bottles, etc., are found in the tanks when opened for cleaning. The common drinking-cup is absent from the common carriers in the United States, as a result of an amendment to the interstate quarantine regulations which forbids absolutely that a common carrier engaged in interstate traffic shall supply common drinking-cups to the traveling public. The use of a common roller-towel is equally against the regulation. A depot or a waiting-room used by common carriers is just as much a part of the system that is engaged in interstate traffic as the engine or the roundhouse, and the regulations apply with equal force to these places.

DR. A. M. HUME, Owosso, Mich.: I have had in charge the sanitary work of a small railway, in addition to the management of the surgical department and all of the departments that would be included in the suggestions offered by Dr. Smith. In my opinion it is not practicable to divide this work into so many departments. Greater proficiency will be attained if the work is put in charge of a competent man who is a railway surgeon and sanitarian, and who has proper executive ability.

The common towel and the common drinking-cup have been abolished from almost all the railways in the country through the order of the U. S. Public Health Service, reinforced by the regulations of some of the state boards of health. The Michigan State Board of Health abolished the common drinking-cup prior to the U. S. Public Health Service order, and there has been a willing compliance by that board, and others too, I presume, with all of the regulations that have been issued by the U. S. Public Health Service. Unfortunately, however, this right attitude of state boards of health is not universal. At the meeting of the chief surgeons of railways held in Chicago not long ago, when the subject of certified drinking-water for use on trains was under discussion, there was an expression from at least one state board of health that it proposed to run its own business and would not allow dictation by the U. S. Public Health Service. When that Service prohibits the use of only such drinking-water as has been certified to by the state board of health, and state boards refuse to certify any water, the railway companies are placed between two fires.

Some boards have intimated that they would do this work if paid for it, but we contend that, as this is a measure for the protection of the public health, the public and not the railway companies should bear the expense of such protection. The willingness of the railway companies generally to comply with this regulation is not questionable; but the willingness of some state boards of health to do their part is very questionable.

DR. ALBERT E. CAMPBELL, Chicago: I was in private practice and a health officer when I was asked to become health officer of the Illinois Central Railroad Company. The water-tanks on our system were sterilized eight or ten months before the U. S. Public Health Service ordered it done.

DR. C. C. PRATT, Mankato, Minn.: I have frequently seen the news-agent take a new drinking-cup, drink from it, and then fold it and put it back in his stock for sale to the traveling public.

DR. R. Q. LILLARD, Nashville, Tenn.: I should be recreant to my trust if I did not say a word for the railway. Every railway system in Tennessee is heartily in accord with the U. S. Public Health Service order, and is most willing to carry it out to the letter. Furthermore, they heartily acquiesce in any proposition that will protect the traveling public.

DR. MARGARET A. RYAN, Brookston, Minn.: Why is it that since they have removed the roller-towel, they do not replace it with the sanitary paper towel?

DR. M. CLAYTON THRUSH, Philadelphia: I fully agree with Dr. Rucker that the U. S. Public Health Service has already done splendid service along these lines; I think that the railways will continue to improve existing conditions. We cannot expect a railway system to take up a new order and perfect it in a few months; all the railway systems continue to possess many objectionable features, but these are being eliminated rapidly. The system that I have expounded here was intended for large railway corporations. Every railway would, of course, make its own system of classification; but this would merely be a guiding system, which can be modified to suit the various railways according to the size of the corporation and the various other underlying conditions.

MIXTURES OF THE UNITED STATES PHARMACOPEIA

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NEW HAVEN, CONN.

This paper is to complete the series of three which I have recently written on the subject of a better, more limited Pharmacopeia.[1]

I seriously question the advisability of including the following mixtures in the next Pharmacopeia, on the ground that many of the ingredients are needless and useless, and, in fact, that these multiple mixtures are unscientific. The preparations in questions are:

Elixir adjuvans.
Elixir ferri, quininae et strychninae phosphatum.
Extractum colocynthidis compositum.
Infusum sennae compositum (black draught).
Liquor ferri et ammonii acetatis (Basham's mixture).
Liquor sodii phosphatis compositus.
Massa hydrargyri.
Mistura glycyrrhizae composita (brown mixture).
Mistura rhei et sodae.
Pilulae catharticae compositae.
Pulvis aromaticus.
Pulvis cretae compositus.
Syrupus hypophosphitum compositus.
Syrupus sarsaparillae compositus.
Syrupus scillae compositus.
Tinctura benzoini composita.
Tincture lavandulae composita.

This is the age in which we are analyzing and criticizing everything in the therapeutic line, and why should we accept as gospel, and as above criticism, such mixtures as the preceding titles represent? We decry proprietary mixtures and "shotgun" prescriptions; why do we accept these legacies of ancient vintage because the Revision Committee of the United States Pharmacopeia sees fit to perpetuate such therapeutic nonsense?

Let it be repeated and emphasized, as I have done, that the omission from the next Pharmacopeia of any drug or preparation does not deprive a physician from obtaining that drug or preparation by the standard of the last Pharmacopeia in which it was described. The omission of useless drugs and worthless and unnecessary preparations from the next Pharmacopeia means that the Pharmacopeia is so much more up to the present date of science and therapeutic knowledge. It should also be understood that the object of the Pharmacopeia should be to standardize useful drugs and their most elegant (pharmacally) preparations, but its object should not be to show how elegantly a heterogeneous mass of substances can be combined according to the art of pharmacy.

To discuss these mixtures understandingly I shall group them according to their therapeutic uses.

One should give the drug he thinks advisable in the pleasantest manner possible, and he should select the best preparation of the most active drug to accomplish the object desired. If this drug tastes disagreeable it should be made more palatable, if possible. It should rarely be combined with sweet syrups, lest the bad taste be made more persistent. If the drug is irritant, it should not be given on an empty stomach unless with a large amount of water, or by adding something to the prescription that will prevent irritation of the stomach. Just how the drug should be administered, whether in the form of liquid, powder, wafer, capsule or pill, must of course depend on the character of the drug, the size of the dose, and the object aimed at. Presumably a drug given in solution is more rapidly absorbed than one that is not. This may not always be the fact.

Elixir Adjuvans, U. S. P.

This elixir was official in the last Pharmacopeia and has been approved for the next Pharmacopeia. The formula is the following:

Fluidextract of glycyrrhiza.
Glycyrrhiza.
Glycerin.
Ammonia water.
Alcohol.
Water.
Aromatic elixir.
Compound spirit of orange.
Oil of orange peel.
Oil of lemon.
Oil of coriander.
Oil of anise.
Alcohol.
Syrup.
Purified talc.
Alcohol.
Distilled water.

These compound preparations, namely, fluidextract of glycyrrhiza and aromatic elixir, are put together in the proportion of 12 parts of the former to 88 parts of the latter in each 100 parts of the mixture. The instructions are to mix, and filter if necessary. In this mixture it is too bad to spoil the nice (?) distilled water of the aromatic elixir with the plain, every day water of the fluid extract of glycyrrhiza, but this was of course not noted by the advisory board of the last Pharmacopeia.

This preparation, elixir adjuvans, and the aromatic elixir may be considered as cocktails or as menstrua for other ingredients of a cocktail, but represent substances that should ordinarily not be given to a person who is ill. We tell our patients not to take highly spiced foods, not to use irritant and aromatic condiments, and then order such combinations as the above.

The question is whether an elixir composed of the above ingredients is ever needed in the practice of medicine. It absolutely is not, and the care and time devoted to the preparation of the elixir adjuvans in all its details is labor lost. It may taste well, but it is not necessary to use such a mixture of tastes to disguise a bad-tasting drug, and the number of tastes put into this one preparation, namely, the elixir adjuvans, would defy a decision by an expert tea-taster as to just what the taste was that he tasted. In other words, this multiple mixture is unnecessary and should not appear in the next Pharmacopeia, i.e., it should not appear in a scientific book of the year 1913 or 1914.

Tinctura Lavandulae Composita, U. S. P.

Oil of lavender flowers.
Oil of rosemary.
Cinnamon.
Cloves.
Nutmeg.
Red saunders.
Alcohol.
Water.

This very elegant tincture or cocktail (about two-thirds of its bulk being alcohol) for the esthetic treatment of hysterical conditions and nervous indigestions

1. THE JOURNAL, May 10, 1913, p. 1427, and June 28, 1913, p. 2039.

should not be dignified by officialization in the next Pharmacopeia. These patients could be given small doses of any good cocktail and the result would be the same. Let us not cater to such aromatic, alcoholic fallacies. We should be honest with ourselves and remember that such treatment is treatment by alcohol.

TONIC MIXTURES

The following are tonic or alterative mixtures official in the last Pharmacopeia and approved by the Executive Committee for the new one:

Elixir ferri, quininae et strychninae phosphatum.
Liquor ferri et ammonii acetatis (Basham's mixture).
Syrupus hypophosphitum compositus.
Syrupus sarsaparillae compositus.

The ingredients of these mixtures are the following:

Elixir Ferri, Quininae et Strychninae Phosphatum, U. S. P.

Soluble ferric phosphate.
Quinin.
Strychnin.
Phosphoric acid.
Ammonium carbonate.
Alcohol.
Acetic acid.
Ammonia water.
Distilled water.
Aromatic elixir.
- Compound spirit of orange.
  - Oil of orange peel.
  - Oil of lemon.
  - Oil of coriander.
  - Oil of anise.
  - Alcohol.
- Syrup
- [Purified talc]
- Alcohol
- Distilled water.

This is no parody but absolute facts copied from the Eighth Decennial Revision of the United States Pharmacopeia. How many physicians, after reading the above, will deliberately and sanely order this tonic "soup"?

It is hardly necessary to discuss the value of the mixture. A chemist could tell us whether or not the phosphoric acid or the acetic acid would combine with the quinin and the strychnin to make phosphates or acetates, whether or not the ammonia water would counteract the acidity of the phosphoric acid and the acetic acid, just what would become of the ammonium carbonate, just exactly what the alcohol is doing in preventing or promoting chemical changes, and exactly what the patient really receives when he takes a teaspoonful of this chemical nonsense.

Theoretically, the patient receives about 1¼ grains of soluble ferric phosphate, unless something happens to this phosphate in the chemical combination. Likewise, he receives a little more than ½ a grain of quinin and about 1/60 grain of strychnin. The dose of this tonic is stated to be 4 c.c. or a fluidram, and it generally is administered three times a day. The preceding approximate doses that the patient would actually receive are based on the probable administration of a teaspoonful at a dose.

Do the scientific physicians of the year 1913 desire this hodgepodge mixture officialized in the next Pharmacopeia?

Liquor Ferri et Ammonii Acetatis (Basham's Mixture), U. S. P.

Tincture of ferric chloride.
Dilute acetic acid.
Solution of ammonium acetate.
- Ammonium carbonate.
- Dilute acetic acid.

Aromatic elixir (seven ingredients besides alcohol and water, see above).
Glycerin.
Water.

This preparation has long been considered of special value in disease of the kidneys, but as usual with many such mixtures it has been inherited and has been passed on from generation to generation without a question as to the reasons for the combination or its advantages over more simple preparations. In this mixture the iron probably becomes an acetate, and part of the ammonium acetate becomes ammonium chlorid. It decomposes more or less rapidly and should be freshly made when ordered.

Theoretically the aromatics in this preparation are not needed, even if they did no harm, in kidney defect.

It seems absurd to perpetuate a mixture of this number of ingredients when the whole object aimed at is to give iron in a pleasant and diuretic form. The tincture of the chlorid of iron may be given in from 1 to 3 drop doses in a small glass of freshly made lemonade, or it may be given in a mixture such as the following:

		gm. or c.c.		
℞	Tinctura ferri chloridi....	5		ʒss
	Syrupi acidi citrici.....	.25	or	ʒi
	Aquae .....q. s. ad	100		ʒiv

M. et Sig.: A teaspoonful, in water, three times a day, after meals.

Or, the saccharated oxid of iron *(Eisenzucker)* may be given in tablet form; or the reduced iron, in small amount, may be given in a dry capsule; or the Blaud pill may be given. They will all answer the same purpose as far as the tonic effect is concerned. In other words, it is an insult to our intelligence to perpetuate this mixture just because it has a good inheritance and because it is used in almost every hospital in the country.

Syrupus Hypophosphitum Compositus, U. S. P.

Calcium hypophosphite.
Potassium hypophosphite.
Sodium hypophosphite.
Ferric hypophosphite.
Manganese hypophosphite.
Quinin.
Strychnin.
Sodium citrate.
Diluted hypophosphorous acid.
Sugar.
Water.

It is not necessary to repeat the argument against this mixture. The value of hypophosphites is mythical, and that being a fact, it should throw the whole mixture into disrepute. (See discussion of hypophosphites, THE JOURNAL, March 8, 1913, p. 747.)

Syrupus Sarsaparillae Compositus, U. S. P.

Fluidextract of sarsaparilla.
Fluidextract of glycyrrhiza.
Fluidextract of senna.
Sugar.
Oil of sassafras.
Oil of anise.
Oil of gaultheria.
Water.

There is absolutely no excuse for the next Pharmacopeia perpetuating the sarsaparilla fraud. The sarsaparilla nostrums on the market are enough to condemn any sarsaparilla mixture as a medicine, and the value of sarsaparilla as a drug is nil. Therefore, this mixture of spices and laxatives, glycyrrhiza and senna, is utterly uncalled for. If the object of this mixture is only as a menstruum for a bad tasting drug, such as potassium iodid (in which the latter was for a long time frequently administered) it is a failure. It did not improve the taste, and (it has long since been decided) was a very poor method of administering potassium iodid. It is absurd for this preparation to enter the next Pharmacopeia.

EXPECTORANT MIXTURES

Preparations for this object that have been approved for the next Pharmacopeia, and are inexcusable multiple mixtures, are:

Mistura glycyrrhizae composita (brown mixture).
Syrupus scillae compositus.
Tinctura benzoini composita.

Mistura Glycyrrhizae Composita, U. S. P.

Pure extract of glycyrrhiza.
Syrup.
Acacia.
Camphorated tincture of opium.
  Powdered opium.
  Benzoic acid.
  Camphor.
  Oil of anise.
  Glycerin.
  Diluted alcohol.
Wine of antimony.
Spirit of nitrous ether.
Water.

This long, much-used preparation, believed in by everyone, many times used as the last ingredient or menstruum of a multiple cough mixture, can be criticized only in a spirit of bravado and temerity. It is like attacking a household god. From beginning to end it is a fool mixture. The mere fact that a patient has a cough is no reason that he should also be forced to have a sour stomach. I have repeatedly urged that sweet syrups should not be given as menstrua for the administration of some efficient expectorant drug. This mixture should not be used for the following reasons:

1. If a laxative action is required it may be induced in a much better way than by this extract of glycyrrhiza.

2. This dear old time-honored paregoric, which alone contains six ingredients, which it has been claimed was introduced into medicine at the Leyden University early in the eighteenth century, contains too small an amount of opium to be of any sedative value in this compound licorice mixture.

3. It takes but little water to precipitate the camphor of the mixture. The addition of paregoric to any cough mixture is absurd, as there always is a precipitate. If some sedative or opiate is needed, morphin, codein, or even heroin may be used to very much better advantage and with very much more homogeneous results. The dose of opium administered by paregoric in a mixed solution is absolutely uncertain.

4. As I believe there will be no wine of antimony in the next Pharmacopeia, the antimony that will be used in the mistura glycyrrhizae composita is not determinable at this writing. Be that as it may, antimony should, theoretically, according to modern pharmacologic and therapeutic belief, not be given internally at all, with the possible exception of tartar emetic being used in small doses, more or less frequently repeated, to the point of nausea (which should occur within a few hours) in an acute inflammation of the upper air passages. There is no other legitimate use for antimony. The addition of antimony to a cough mixture to be used any longer than the first twenty-four hours, in any dose that would be tangible, is not good therapy.

5. Sweet spirit of niter to be of value must be freshly made. Nitrites will cause more or less dilatation of the peripheral blood-vessels, and the sweet spirit of niter, when freshly made and frequently administered, in small doses, with a patient in a warm room and covered up, may cause perspiration. When such is administered in cold water, and the patient is not too warm, it may cause some slight increase in the amount of urine. To obtain these actions at all the drug must be frequently administered, and its activity in such a combination as the preceding brown mixture is too doubtful for thoughtful consideration.

It is not desired to intimate that the preparation would do any harm, except possibly to cause nausea from its sweetness. It certainly would not increase appetite. It might constipate, or it might cause looseness of the bowels, depending on the drug to which the patient was the most susceptible, the opium and camphor or the licorice. But when simple drugs, associated to meet the indications in the individual patient will act therapeutically most successfully, why should the next Pharmacopeia honor this old-time mixture with its ratification?

Syrupus Scillae Compositus, U. S. P.

Fluidextract of squill.
Fluidextract of senega.
Tartar emetic.
Purified chalk.
Sugar.
Water.

This is another combination with antimony, and the advisability of using antimony internally has already been discussed. There is no excuse for ever using senega; there is little excuse for ever using the nauseating, disgusting squill as an expectorant.

Also, each 100 c.c. of this mixture contains 75 gm. of sugar, i. e., in every teaspoonful of this sickish, sweetish, nauseating, nasty mixture there is contained 3.75 gm., or about 57 grains, of sugar. These facts are certainly enough to condemn the use of this old "hive syrup," the hobby of our great-great-great-grandmothers.

Tinctura Benzoini Composita, U. S. P.

Benzoin.
Purified aloes.
Storax.
Balsam of tolu.
Alcohol.

This preparation is now rarely given internally, although the last Pharmacopeia gives the dose as 2 c.c., 30 minims. This mixture also partakes of the past, when the preparation was frequently used as an expectorant, administered internally. It is now generally conceded that these balsams are not of great benefit to the stomach, and that if a patient needs the laxative effect of aloes it had better be administered in some more pleasant manner and not given frequently as a cough mixture is supposed to be administered. Therefore, internally, the preparation is a failure. It is frequently used for inhalation, and the balsams and benzoin thus vaporized are doubtless of value in many conditions of

the throat, larynx, and larger bronchial tubes. But why should aloes be administered in a preparation whose only value is that of an inhalant? The preparation would also be better without the irritant action of storax.

CATHARTIC MIXTURES

Extractum colocynthidis compositum.
Infusum sennae compositum.
Liquor sodii phosphatis compositus.
Massa hydrargyri.
Mistura rhei et sodae.

Infusum Sennae Compositum, U. S. P.

Senna.
Manna.
Magnesium sulphate.
Fennel.
Water.

This ancient and nauseating mixture has been accepted for the new Pharmacopeia. No one could question its efficiency, but everyone could question the object of the manna. The dose of this nauseating drink is 4 fluid ounces, or 120 c.c., and the druggist is supposed to make 1,000 c.c. of the preparation. The question is how long it would take to make it, and how long this preparation should be kept, and what a dose of magnesium sulphate given in this form would cost the patient. The whole proposition is bad sense pharmacally, economically and therapeutically. If the patient needs a cathartic, he can receive magnesium sulphate in some pleasant effervescing form, or he may be given some other of the many simple cathartics.

Liquor Sodii Phosphatus Compositus, U. S. P.

Sodium phosphate.
Sodium nitrate.
Citric acid.
Distilled water.

Perhaps there is nothing very serious the matter with this mixture, but it is entirely superfluous. It has no advantage whatever over a Seidlitz powder or the liquor magnesii citratis. It is an unnecessary redundancy in the Pharmacopeia, and is only mentioned here on that account.

Massa Hydrargyri, U. S. P.

Mercury.
Glycyrrhiza.
Althaea.
Glycerin.
Honey of rose.

To attack this old "blue mass" is like another attack on a household god, and one is in danger from the shades of his ancestors, to say nothing of attacks by his professional brethren, when he states that this preparation is not needed and should not be perpetuated. The ridiculousness of the "honey of rose" in a cathartic mass is self-evident, in fact, the modern physician has but to read these ingredients to agree that the mass of mercury should be an ancient joke.

Mistura Rhei et Sodae, U. S. P.

Sodium bicarbonate.
Fluidextract of rhubarb.
Fluidextract of ipecac.
Glycerin.
Spirit of peppermint.
Water.

This preparation is specifically a hospital preparation, and if it was estimated how many times this preparation was used in hospitals in a single day in the United States the impression would be made that it was an essential in curing hospital patients. The hospital graduates then use this preparation more or less frequently throughout their professional life. If we analyze this preparation the following facts should be noted:

1. The object of sodium bicarbonate is to overcome hyperacidity of the stomach, or to increase the alkalinity of the blood. If this preparation is to be given before meals, the sodium bicarbonate would probably soon be neutralized by the hydrochloric acid. If it was given after meals, it would perhaps lengthen the duration of the activity of the starch changes caused by the saliva. The question would be, What action of sodium bicarbonate is desired, and is that indication met in this combination?

2. The rhubarb is of course a laxative. It is a question whether this bad-tasting stuff is needed or advisable three times a day, or is necessary to obtain an action of the bowels.

3. The ipecac is more or less of a gastric stimulant, and if in any amount, would cause nausea and perhaps vomiting. The dose is very small and the action is probably nil. If the dose is a teaspoonful of the preparation, the patient would receive 0.015 c.c., or about ¼ of a minim of ipecac, a perfectly negligible dose; in other words, objectless.

The glycerin is in considerable amount, and the glycerin might act as a laxative, or, if given on an empty stomach, could cause vomiting.

The peppermint is of course a carminative.

The preceding mixture, though more or less harmless, and often apparently of benefit, is so markedly inferior to more scientific medicinal treatment that modern physicians should abandon its use, and it should be eliminated from hospitals as partaking of the nature of a nostrum, and certainly should not be perpetuated in the new Pharmacopeia.

Pilulae Catharticae Compositae, U. S. P.

Compound extract of colocynth.
  Extract of colocynth.
  Purified aloes.
  Cardamom.
  Resin of scammony.
  Soap.
  Alcohol.
Mild mercurous chlorid.
Resin of jalap.
Gamboge.
Diluted alcohol.

To attack this time-honored and much-used cathartic again requires a spartan temperament, but I will wager that not one physician in twenty-five remembers the ingredients when he orders the cathartic pill.

Is it necessary, in order to obtain catharsis, to give this mass of cathartic drugs? Those of us who order one simple drug for such action obtain the same results as those who use this mixture. It certainly will be impossible to eradicate this from the Pharmacopeia, but I would urge every physician who orders this preparation, especially every surgeon, please to note the drugs that he administers. Many of these ancient cathartics should be removed from the Pharmacopeia.

The following two compound powders are unnecessary:

Pulvis Aromaticus, U. S. P.

Cinnamon.
Ginger.
Cardamom.
Nutmeg.

It is rarely advisable to give a lot of spices to a patient who is ill. We are constantly endeavoring to prevent the use of highly seasoned food, and it seems hardly worth while to officialize a combination of these aromatics. If an aromatic is needed, any one may be selected; a mixture would be generally contra-indicated.

Pulvis Cretae Compositus, U. S. P.

Prepared chalk.
Acacia.
Sugar.

If prepared chalk is needed as a sedative for the bowels or as an alkali for the stomach, its combination with sugar is certainly not physiologic. As a general axiom, in all kinds of indigestions sugar is more or less contra-indicated, and certainly it is not advisable to combine it in 50 per cent. strength (as is done in this mixture) in a preparation used as a medicine.

252 York Street.

THE SANITARY RECORD OF THE SECOND DIVISION OF THE U. S. ARMY IN TEXAS

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The first regularly organized division of the United States Army called into the field since the Civil War was mobilized at Texas City and Galveston, Tex., March 1, 1913. The troops encamped at Texas City numbered approximately 8,500 and those at Galveston 3,500.

The camp ground at Texas City had been selected in dry weather, when it presented a favorable appearance; but when actually occupied, after the spring rains, it proved to be badly drained. The soil was of clay and impervious, conditions usually considered unfavorable to health. In spite of such ditching as it was practicable to do, after heavy rains the water stood in the tents of both officers and men. By the first of April a better site had been selected and put in condition for occupancy by a comprehensive system of surface drainage, carried out under the supervision of the engineer officers of the division.

The principal sanitary requirements for a camp of this kind are, generally, as follows:

1. An ample supply of pure water.
2. An efficient system of excreta disposal.
3. Protection of the command against typhoid and small-pox by vaccination.
4. The prevention of soil pollution.
5. The prevention of dissemination of disease by flies and mosquitoes.
6. Means of insuring personal cleanliness.
7. Prophylaxis against venereal disease.

The first requisite, a pure water-supply, had been provided before the arrival of the troops by an extension into the camps of the water-supplies of Texas City and Galveston, respectively.

Excreta disposal is provided for in the Texas City camp by the use of pits, one for each company, from 5 to 7 feet deep, covered by box seats with ten holes in each, provided with self-closing lids and constructed so as to be fly-proof. The boxes are placed over the pits and the contact with the ground made fly-proof by banking with soft earth or sand. Once daily the boxes are turned over and the pits burned out, 10 pounds of hay and 1 gallon of crude oil being used for this purpose. Careful daily inspection by sanitary officers is necessary to insure the latrines being kept actually fly-proof. The latrine seats are scrubbed daily. When the pits become filled within two feet of the top they are covered over and new ones dug.

Every officer and man, as well as all civilian employees, not already protected, was required to be vaccinated against small-pox and typhoid fever.

Soil pollution is prevented by disposing of all solid and liquid garbage in improvised incinerators constructed at each kitchen by soldier labor. All organic waste is in this way disposed of as it occurs and no accumulation is permitted. Picket lines are kept carefully policed and all manure is hauled some distance from camp and burned.

Flies are prevented from breeding, so far as possible, by the careful disposition of manure, garbage and other organic waste as outlined and by preventing their access to the latrines. A number of flies come into camp from the neighboring town and others are bred on the surrounding prairie where the animals are grazed. To destroy these flies each company has provided itself with several large home-made fly-traps, which are placed outside the kitchen doors and in other places where flies congregate. These traps are an unqualified success. All kitchens and mess-halls are screened. The small number of flies in camp has been a matter of general comment.

Mosquito breeding is partially controlled by draining and oiling. We have also been assisted in our mosquito campaign by an unusually dry summer. The country surrounding the camp at Texas City is, however, so low and flat that the breeding of mosquitoes cannot be entirely controlled by a reasonable expenditure of labor and money. Officers and men are therefore required to sleep under the mosquito-bars, and all cases of fever, of whatever nature, are immediately placed in screened wards in the field hospital.

The men have access to a salt-water beach for bathing and in addition fresh-water showers are provided.

Tents are placed at convenient points, with attendants constantly on duty, in which men who have been exposed to venereal disease are, on their return to camp, required to take prophylactic treatment. This consists of irrigating the anterior urethra with a 2 per cent. protargol solution and anointing the penis with a 30 per cent. calomel ointment.

The results, as shown by the sick-rate, have been better than in any other camp the army has ever had. For the five months from March 1 to July 31, there has not been a single case of typhoid or paratyphoid fever among the personnel of the camp. Malaria and dysentery have been practically absent and, with the exception of a short epidemic in one brigade, after an absence of a week from its regular camp, there has been comparatively little diarrhea.

The constantly non-effective rate from all causes has been 1.14 per cent., of which 0.20 per cent. was due to injury, making the average rate from sickness 0.94 per cent. With a constant mean strength of 11,373 men, there have been, during the five months the division has been in camp, sixteen deaths, ten of which were due to injury and six to disease.

In my opinion these improved results may be attributed to the following causes: typhoid prophylaxis, the systematizing of sanitary effort in the army as inaugurated at the San Antonio camp two years ago, the increasing knowledge of officers and men of the benefits to be derived from sanitary measures and their con-

sequent cooperation with the medical officers, the thorough support given the sanitary department by the commanding general and the zeal and efficiency of the medical officers.

With certain modifications in detail the sanitary measures herein outlined could be quite largely employed by the civil population in small towns and rural communities.

A NEOSALVARSAN FATALITY

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ST. LOUIS

A number of untoward accidents have followed the use of salvarsan and neosalvarsan since its introduction as a therapeutic agent. Editorial comment in THE JOURNAL[1] called attention to the dangers of the use of this remedy. The following case, which is hereby reported, is perhaps one of the most striking examples of what may happen following the injection of salvarsan, even under the most favorable circumstances, that is, in one who was not suffering from any serious organic lesions; and it is especially significant owing to its correspondence with a report of Wilhelm Wechselmann[2] and also that of Homer F. Swift,[3] of three almost identical cases.

History.—H. C., man, aged 29, with a history of primary chancre about five years before, had mercury and potassium iodid treatment for over two years. For past two years he had taken no treatment. Present treatment began on account of mental attitude of patient rather than from any objective symptoms.

Ophthalmic examination by Dr. W. E. Klokke showed spots before eyes and a blurring of vision. Vision, right eye, was 6/7.5, left eye 6/10; no improvement with lenses. Cornea and lens clear; eye-ground showed arteries small, some pallor and beginning dilatation of retinal veins. Left eye showed considerable cloudiness of retina; no contra-indication of salvarsan. Physical examination showed patient extremely well developed, heart and lungs normal, slight enlargement of liver and spleen and slight amount of arteriosclerosis. Urinalysis was negative to albumin and sugar. Specific gravity 1.022, reaction slightly acid.

Treatment.—Feb. 26, 1913, the patient received the first injection of neosalvarsan, 0.6 gm. intravenously. This was prepared in freshly distilled crystal water. The patient had no ill effects from this injection, not even nausea, headache, chill or other disturbances that frequently follow such an injection. He was seen every day for several days. The first twenty-four hours urine showed a trace of albumin, and the specific gravity was 1.025. The urine was normal after twenty-four hours. Three weeks later he was given 10 drops of saturated solution of potassium iodid three times daily for a period of two weeks. After one week without treatment, six weeks after first injection, eye examination showed decided improvement. Vision, right eye, 6/6, left eye 6/6. Ophthalmoscope showed retinal vessels of the right eye normal. Arteries of the left eye were small and the veins dilated, but cloudiness had practically disappeared; pallor was still present in areas. The heart and lungs were normal, liver and spleen slightly enlarged, and kidneys normal.

The second dose, 0.6 gm., same as the first, of neosalvarsan was given intravenously. Following this injection the patient rested about fifteen minutes, showing no ill effects whatever. He then started for his hotel, which was one-half block distant. After being gone about ten minutes he returned and collapsed in reception-room, just as he entered. His face was flushed, muscles tense, and he fell on the floor in a convulsive state. Respiration was difficult, and there was some bloody froth at the nose. Usual remedies were given, including 1/30 grain strychnin hypodermically, followed shortly by 1/150 grain atropin and ¼ grain morphin. Muscles relaxed, breathing became easier, and consciousness was regained. The patient was placed on a couch and a little whisky and aromatic spirits of ammonia were given. Cyanosis cleared up, pulse came down fom 138 to 100; ambulance was called, patient walked to this unassisted. He was taken to the hospital and a special nurse put in charge. Heat was applied, and from that time he seemed to be all right; he complained of being tired, and rested for about five hours, then suddenly, without premonitory symptoms, breathing and heart action seemed to stop and the patient died, there being no final convulsions.

This is the first fatality occurring to me in over six hundred injections of salvarsan, but is the seventh death to my knowledge resulting from salvarsan in St. Louis since its introduction as a therapeutic agent.

The pathologic report of Dr. R. L. Thompson follows:

PATHOLOGIC REPORT, R. L. THOMPSON, M.D., ST. LOUIS

Body of well-developed and well-nourished male. Slight abrasion over bridge of nose. Pupils 4 mm. in diameter. Some froth exudes from mouth and nostrils; the latter being blood-tinged. Teeth tightly set. Lividity extreme over dependent portions of body and also well-marked on sides of chest, neck and head.

Abdominal cavity: Normal save for about 30 c.c. of slightly blood-tinged fluid in right hypochondrium. Peritoneum, normal. The superficial vessels of the stomach and duodenum show moderate congestion.

Pleural cavities: Normal.

Lungs: Voluminous, fill cavities; grayish-pink with usual carbon tracery. Pleura smooth. Bronchi intensely reddened and contain stiff slightly blood-stained foam. On section both lungs exhibit the most intense edema and congestion; blood and frothy fluid flow freely on slight pressure. The right lower lobe is especially firm and one of the medium-sized vessels is occluded by a red thrombus at the end of which is a small area of infarction about 2 cm. in diameter. There is more or less hemorrhage into the lung, surrounding this area.

Pericardial cavity: This contains about 20 c.c. clear straw-colored fluid.

Heart: The right side of the heart is dilated and filled with cruor clot. Heart muscle firm and dark red. Valves normal.

Arteries: Moderate fatty degeneration of intima of aorta most marked just above the aortic valve.

Stomach: Normal size. Contains about a pint of brownish-colored fluid of no particular odor. The mucosa is intensely reddened especially in the upper half and along the lesser curvature. This reddening appears as numerous tiny close-set ecchymotic dots. In addition a considerable amount of tenacious blood-stained mucus adheres to the stomach wall.

Intestines: The intestinal mucosa is practically normal, save for a slight congestion of the duodenum.

Pancreas: Congestion.

Liver: Slightly enlarged; surface smooth; on section dark red; blood flows freely from cut vessels; consistence slightly diminished.

Kidneys: Normal size; dark red. Capsule strips easily, leaving smooth surface. On section show intense congestion of both cortex and medulla.

Spleen: Somewhat larger than normal. Soft. On section dark red; pulp is semifluid in consistence.

Genitalia: Normal.

Scalp and skull: Normal.

Brain: Sinuses filled with dark fluid blood. Vessels of pia deeply injected; dark red; fine stellate markings of congestion, particularly well marked over occipital region. There is very little cerebrospinal fluid. The brain is heavy

1. The Present Position of Salvarsan in Syphilis, editorial, THE JOURNAL A. M. A., Oct. 5, 1912, p. 1295.
2. Wechselmann, Wilhelm: Urolog. and Cutan. Rev., Berlin, March, 1913, p. 1.
3. Swift, Homer F.: Anaphylaxis to Salvarsan, THE JOURNAL A. M. A., Oct. 5, 1912, p. 1236.

and shows on section edema of the substance and congestion; puncta cruenta show marked spreading. The basal ganglia are quite dark in color, as is also the cerebellum, and blood flows on section of vessels of any size. The floors of the lateral ventricles and fourth ventricle show granular ependymitis. Pons and medulla normal. Spinal cord normal at cervical segment.

Thyroid, adrenals and pituitary: These all show intense congestion.

Anatomic Diagnosis.—Edema and congestion of lungs; small infarct, right lower lobe; acute gastritis; edema and congestion of brain; acute congestion of all parenchymatous organs and ductless glands.

Cause of death: Acute arsenic poisoning.

Thanks are due Dr. Louis R. Padberg, Coroner of St. Louis, for permission to publish the post-mortem report in this case.

THE EMPLOYMENT OF CARMIN IN GASTRO-INTESTINAL DIAGNOSIS *

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Notwithstanding its comparatively long employment in gastro-intestinal diagnosis, the utilization of carmin for this purpose appears to be but little known and understood by the profession in general.

The employment of carmin in gastro-intestinal diagnosis is not new. As far back as 1874, Grützner[1] devised his colorimetric method for pepsin determination by carmin-stained fibrin, a method which has now merely a historical interest. For use in diagnosis, carmin may be taken in capsules, dry on the tongue, or mixed with water or food. When pure, it is absolutely harmless in moderate amounts. I have repeatedly administered as much as half a teaspoonful to patients and noted no bad effects. Schmidt[2] mentions that it may prove slightly irritating to the bowels, but this has not been my experience. Taken by mouth, the drug stains the feces, with which it becomes intimately mixed, a brick-red. The intensity and extent of this color is roughly proportionate to the amount of carmin taken, the rapidity of its passage through the gastro-intestinal canal and the consistency of the bowel contents. Carmin is probably not absorbed, as it imparts no stain to the urine, sweat, saliva, tears or visible tissues.

Carmin is used in gastro-intestinal diagnosis:

1. To mark off or differentiate the stools of one diet from those of another.

2. To estimate the rapidity of gastro-intestinal motility.

Following the suggestion of Adolf Schmidt[3], I have since 1899 made use of carmin in stool observations.[4] I find 5 grains a sufficient dose for ordinary purposes. This amount usually secures two distinctly red movements. The second, however, may have only a faint tinge in parts, or may contain but a few crystals of carmin. Large doses should not be given; they only prolong the red effect on the dejecta. I have the patient take the drug mixed with a teaspoonful of water.

The second-named purpose, that of estimating the rapidity of gastro-intestinal motility, has been described by Adolf Schmidt[2] and Spivak[5]. We have no means of determining the rapidity of the individual intestinal segments excepting by the Roentgen rays. When it is not possible to employ the Roentgen rays, we can gain an idea of the rapidity of the passage of food through the entire bowel in one of two ways. We can either introduce a carmin solution directly into the duodenum and time its exact exit per anum, or we can let the patient swallow the drug and, having estimated the motility of the stomach, deduct that time from the total time required for the first appearance of the red stools.

It may also be mentioned that carmin has been used in experimental demonstration in animals of the *Schichtung* or layer formation of the gastric contents during active digestion.

I wish to suggest the following additional uses of carmin in diagnosis:

1. To determine whether the alimentary canal is patent or obstructed and whether an existing obstruction is temporary or permanent.

2. To detect a fistulous communication with the alimentary canal.

3. To ascertain in a very simple manner if a duodenal tube is within the duodenum or the stomach.

4. To aid in the diagnosis of esophageal dilatation and diverticulum.

I have employed carmin repeatedly for the first three purposes named and can well recommend it for simplicity of use and accuracy of conclusions.

In the absence of vomiting, failure to reappear at all can be due only to complete obstruction (acute or chronic) somewhere in the digestive tract.

I would particularly suggest its employment in suspected infantile or so-called congenital pyloric stenosis. It has been shown by Nobécourt and Merklin[6] that in normal infants up to 3 months of age, red stools appear in from three to nine hours after the administration of 1 grain of carmin. Hence the complete absence of carmin excretion in these little patients would be indicative of a definite anatomic obstruction somewhere within the alimentary canal.

When the Roentgen-ray or instrumental methods cannot be used, the administration of a few grains of carmin, with a little water or nourishment, brings no added danger or inconvenience to the patient and may throw a flood of light on the situation.

In those cases of intestinal obstruction in which fecal contents still pass out, but come from points below the site of the obstruction, the special value of the carmin test is seen. If one of these patients be given carmin and the stools continue to appear unstained by the dye, the fact of a complete obstruction is absolutely proved.

The value of carmin in the detection of externally communicating fistulas is well illustrated by the following case, in which the patient was under my care in 1900:

Mr. A. C., aged 43, gave a history of pain in the abdomen, constipation and occasional blood mixed with the stools. The urine was turbid and there were pains before micturition. Physical examination was negative, but repeated examination of the freshly voided urine gave the following; Acid reaction, very turbid appearance, but no special odor. The microscopic examination of the sediment showed erythrocytes, pus cells and many transversely striated muscle fibers.

The last-named finding could only result from an intravesicular rhabdomyoma or from a fistulous communication between the bladder and bowel. To clear up the diagnosis,

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* Read at the Sixteenth Annual Meeting of the American Gastro-Enterological Association at Washington, D. C., May, 1913.

1. Grützner: Arch. f. d. ges. Physiol., 1874, viii, 452.
2. Schmidt, Adolf: Die Funktionsprüfung des Darms, etc., Ed. 2, Wiesbaden, 1908.
3. Schmidt, Adolf: Deutsch. Arch. f. klin. Med., 1898, lxi, 548.
4. Basch, Seymour: Ztschr. f. klin. Med., 1899, xxxvii, Nos. 5 and 6
5. Spivak: Denver Med. Times, November, 1910.
6. Nobécourt and Merklin: Bull. de la Société de Pediatrie, Jan. 12, 1910, No. 1.

the patient was placed on a meat-free diet and given 5 grains of carmin. Soon he passed a very red urine that contained carmin crystals, but no longer any muscle fibers. This proved conclusively the absence of a rhabdomyoma and the existence of an intravesicular fistula. A positive diagnosis of a malignant intestinal tumor with a fistulous communication into the bladder was made. The case came to operation and proved to be an inoperable lymphosarcoma of the ileum adherent to and rupturing the bladder. A later post-mortem examination confirmed all the findings given.

In duodenal intubation and feeding it is important to know whether the distal end of the tube lies within the duodenum or stomach. It is not always possible to obtain secretion by suction, and when the secretion is of a golden yellow color and gives a strong Congo reaction, it may come from either the stomach or the first portion of the duodenum. The question can readily be settled by allowing the patient to drink a small amount of clear, fresh, watery solution of carmin and, attaching the feeding syringe, at once making suction. If the distal end of the tube is within the stomach, carmin solution will be withdrawn; if in the duodenum, no fluid at all, or characteristic bile-colored duodenal fluid, will appear.

Although roentgenoscopy is by far the best method for the diagnosis and differential diagnosis of esophageal dilatation and diverticulum, the suggestion is made that carmin be used in this connection in the same manner as some of the more or less distinctly colored food fluids (black coffee, milk, etc.), heretofore employed for this purpose. It has the special advantages of being bland, acceptable to all palates and of not changing its physical or chemical properties.

CONCLUSION

I would state that in the carmin test we have a simple, harmless, reliable and convenient means for the demarcation of stools, the estimation of gastro-intestinal motility and patency, for the detection of fistulous communications of the alimentary canal with the exterior or with other hollow organs, for the location of the distal end of a duodenal tube and to aid in the differentiation between esophageal diverticulum and dilatation.

With the more universal employment of this method, no doubt further fields of usefulness will suggest themselves.

142 West Eighty-Fifth Street.

A CASE OF BRAIN SYPHILIS

NATHAN B. EDDY, M.D., NEW YORK

The course of the case of brain syphilis previously reported by me[1] has been interesting and for correctness a further report is necessary.

Previous History.—The previous report stated that the patient, F. M., aged 34, married, a laborer, having a positive syphilitic history, was admitted to the hospital Dec. 28, 1912, in coma with convulsions and a transient left-sided hemiplegia. He had a strongly positive Wassermann and was treated by repeated injections of salvarsan, neosalvarsan and mercury salicylate. For the time being his recovery was complete and on Feb. 8, 1913, he was discharged from the hospital, apparently in perfect health. During February and the first part of March the patient returned weekly for intramuscular injections of mercury salicylate, one grain being injected each time. About the first of March he went to work in an iron foundry.

Second Attack.—April 14, 1913, while at work, he suddenly fell to the ground in a general convulsion, which was followed by deep coma, and at 9:40 a. m. of the same day he was readmitted to the hospital. His condition was much the same as on his previous admission except that no sign of paralysis was present. He could not be roused. The pupils were equal and regular, though small and inactive. The pulse was full but not rapid and without high tension. All reflexes were diminished, those on the right side slightly more than those on the left. Otherwise physical examination was negative.

Because of the previous history the patient was given neosalvarsan, 0.9 gm., intramuscularly, the same afternoon. The blood and spinal fluid taken the same day were examined and both gave a strong Wassermann reaction. As before, recovery was prompt and continuous so that the patient was rational and comfortable, April 24, and was up and about, May 4.

The injection of neosalvarsan, 0.9 gm., was repeated, April 28, and the patient received the weekly injections of mercury salicylate as well as potassium iodid up to 90 grains three times a day. May 9, the patient felt so well that he insisted on going home, promising to return every week for injections. He was seen but once about two weeks later. At that time he was at work, though he seemed restless and rather silly.

Third Attack.—June 25, 1913, following excessive alcoholic indulgence, the patient was again seized with convulsions and was brought to the hospital at 12:30 p. m. He had a severe general convulsion shortly after admission. He was in coma with no sign of paralysis, and as before the coma cleared up rapidly, leaving him violent and noisy.

He was given salvarsan, 0.3 gm., intravenously, July 3, with only slight change in his mental condition, and mercury salicylate, ½ grain, intramuscularly, July 5, 9, 12, 16, 19 and 23. A Wassermann reaction, July 7, was strongly positive and a Wassermann reaction on the spinal fluid the next day was equally positive. A cell-count of the spinal fluid at this time showed 105 cells per cubic millimeter, the majority of which were epithelial cells with very few polynuclears. The fluid was perfectly clear and under pressure. The condition of the patient resembled alcoholic delirium, and varied from day to day from silly docility to noisy violence, but at no time was he rational. He had one more convulsion at 5 p. m., June 30.

Repeated examinations of the urine were entirely negative in result, showing no apparent effect on the kidneys of the many injections of salvarsan and mercury. His temperature was generally flat normal with an occasional rise to 99 or 100 F.

July 23 his temperature rose abruptly to 104 F. and his condition became much worse. He was drowsy and stupid and took fluids with difficulty. July 24 his temperature rose to 106 F. There were neither convulsions nor signs of paralysis. He became rapidly weaker and died in coma the next day, July 25, at 11:30 a. m. Necropsy was refused.

This case brings out the prompt response of a patient to strong antisyphilitic treatment in an undoubted case of brain syphilis, but the equally prompt relapse, increasing in severity following each interruption of treatment. At the same time I think there is no doubt that the patient's life was prolonged six months, a part of which time he was able to work, and much more might have been done had it been possible to keep him constantly under treatment.

992 Tiffany Street.

1. Eddy, Nathan B.: Recovery in Brain Syphilis after the Use of Salvarsan, THE JOURNAL A. M. A., April 26, 1913, p. 1296.

A METHOD FOR ASEPTIC URETERAL CATHETERIZATION

W. P. WILLARD, M.D., SAN FRANCISCO
Instructor in Urology, University of California

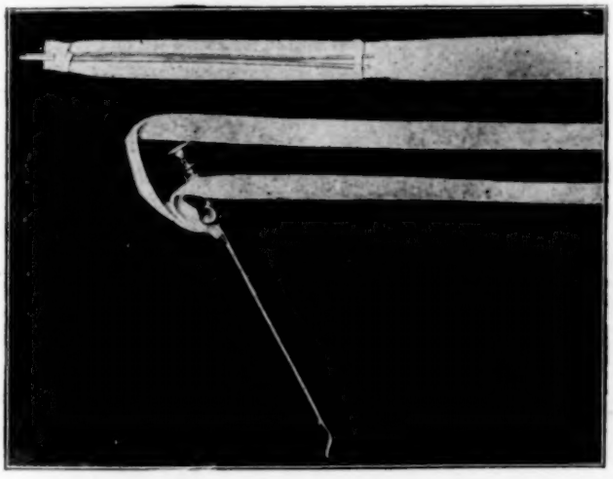
The sterilizing and aseptic handling of ureteral catheters has always been more or less of a problem to the cystoscopist. The method that I here present is one that I have used lately and have found simple and efficient.

The boiling or immersion of the catheters in various solutions renders them soft and difficult to handle. Formaldehyd

as it is generally used is not reliable. With a sterile catheter that is not protected it is almost impossible to avoid contamination of the long free portion. It is also very difficult for the cystoscopist to keep his hands clean, as the connection and switch cannot be sterilized and the handling of the catheter with forceps or gauze is difficult.

I have bags made of muslin 2 cm. wide and about 75 cm. long. It is important to have them wide enough so that the bags fold up readily as the catheter is pushed forward. The catheter containing the wire is placed in the bag. The bag is then wrapped in paraffin paper and fastened in several places with adhesive strips. If a piece of wood is fastened on the outside of the paper at the tip end of the catheter, bending of the tip is prevented. It is well to mark on the paper the size and style of the catheter. The package is now placed in an autoclave for twenty minutes with a pressure of 8 or 10 pounds. A number of catheters can be sterilized at the same time and can be kept for an indefinite period without injuring them.

When the cystoscopist is ready to use a catheter the paper is torn off and the wire is removed. The tip is worked out of the bag and introduced into the cystoscope and pushed forward by holding the catheter through the bag. The instrument is introduced and the catheter manipulated through the bag. When the catheter is in the desired position the bag can be slipped off and the instrument removed.



A device for aseptic ureteral catheterization.

After a catheter is used it should be washed inside and outside and dried by forcing air through it and hanging it near a radiator or in the sun.

If the bag becomes wet during catheterization the wet cloth is apt to adhere to the catheter. The washers on the cystoscope should be tight. Care must also be used in handling the cystoscope containing the catheters to prevent the bags slipping down on the catheters. To keep the bag in place an elastic band can be placed around the bag after it has been pushed up on the catheter tube.

177 Post Street.

A Bouquet for the Doctor.—There is no other profession, unless we except the service of the church, which throughout its history has dispensed so much practical charity and given so much gratuitous service to the cause of humanity. There is no other that has maintained a higher code of ethics or one more scrupulously adhered to. There is no other that places so great and arduous responsibilities on its practitioners. There is scarcely another that requires such exacting training or such careful and continuous amplification of scientific equipment. The medical man who conscientiously meets the many and exacting requirements of his vocation has little time or opportunity for an avocation.—Corwin and Mayo, in *The Outlook*.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ACNE VACCINE (See N. N. R., 1913, p. 221).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Acne Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 50,000,000 killed Bacillus Acne.

BACILLUS COLI VACCINE (See N. N. R., 1913, p. 221).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Coli-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Bacillus Coli Communis.

FRIEDLANDER VACCINE (See N. N. R., 1913, p. 222).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Friedlander-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Friedlander bacilli.

GONOCOCCUS VACCINE (See N. N. R., 1913, p. 223).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Gonococcus-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Gonococci.

PNEUMOCOCCUS VACCINE (See N. N. R., 1913, p. 224).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Pneumo-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Pneumococci.

MIXED VACCINES (See N. N. R., 1913, p. 224).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Staphylo-Acne-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 500,000,000 Staphylococci, and 50,000,000 Acne Bacilli. Total 550,000,000 killed bacteria.

STAPHYLOCOCCUS VACCINES (See N. N. R., 1913, p. 225).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Staphylo-Albus-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 200,000,000 killed Staphylococcus Albus.

Staphylo-Aureus-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 200,000,000 killed Staphylococcus Aureus.

Staphylo-Bacterins (Human) Albus—Aureus—Citreus.—Marketed in packages of six ampules, each containing 200,000,000 killed bacteria.

STREPTOCOCCUS VACCINES (See N. N. R., 1913, p. 226).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Strepto-Bacterins (Human).—Marketed in packages of six ampules, each containing 200,000,000 killed bacteria.

TYPHOID VACCINE (See N. N. R., 1913, p. 227).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Typho-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 200,000,000 killed Typhoid Bacilli.

Typhoid Prophylactic.—Marketed in packages of three ampules, each containing respectively 500,000,000, 1,000,000,000 and 1,000,000,000 killed bacteria.

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SATURDAY, OCTOBER 4, 1913

THE EFFECT OF FOOD ON METABOLISM

Under ordinary conditions of life, and in the absence of modifying pathologic factors like fever, metabolism may be increased by two prominent causes. One of these is muscular activity, which is also commonly referred to by the terms "work" and "exercise." The other factor is the ingestion of food. Extremes of external temperature are, of course, also not without influence on metabolism; but in every-day experience they are modified or counteracted by numerous environmental agencies, such as variations in clothing, etc., so that this element in the forces which play on the energy transformations in our bodies will here be left out of consideration.

The heightened metabolism following the intake of food is not characteristic of any group of foodstuffs in particular, but is evoked by proteins, fats and carbohydrates, though in widely different degrees. It is greatest in the case of proteins. Why muscular work should stimulate the metabolic activities is evident: the problem is merely that of the transformation of energy from one form into another—of converting body fuel into muscular contractions. But why the mere ingestion of food in a person at complete rest should excite a conversion of energy beyond what the basal requirement of the resting individual demands has been a puzzling question for physiologists. There have been two prominent "schools" of opinion. Zuntz and his co-workers assume that the increase in metabolism after eating is mainly due to the mechanical processes of digestion, including the work of peristalsis, segmentation, absorption and glandular activity. The eminent Berlin physiologist Rubner, on the other hand, attributes the increased conversion of energy to what he has termed the "specific dynamic action" of the foodstuffs; that is, they exert an obscure influence whereby part of the energy appears as free heat and does not benefit the cells. On the one theory, as we see, the increase in metabolism is charged chiefly to mechanical causes; on the other, it is mainly attributed to chemical processes.

We have touched on these questions before, and it seems worth while to recur to them whenever fresh evidence bearing on the controversy is presented, for everything pertaining to the theory of metabolism sooner or later finds its application in the experiences and practices of nutrition. Drs. Benedict and Pratt[1] of Boston, have followed the ingenious plan of determining how the metabolism is affected by interference with some of the alimentary factors held by the advocates to be so important for the exhibition of the increased metabolism following the ingestion of food. They have made a study of the metabolic changes entailed by feeding meat to dogs without (external) pancreatic secretion. When the latter is diverted from the digestive tract by surgical interference, for instance, by ligation of the pancreatic ducts, the power to digest and absorb proteins is well known to be greatly impaired. It was evident, therefore, that under these circumstances there would be a maximum work of digestion so far as peristalsis and segmentation are concerned, and a decreased absorption of material from the foodstuffs to be carried by the blood to the cells, there, according to Rubner's views, in part to produce free unutilized heat. It was believed, therefore, that a study of the metabolism of these animals to determine the effect of ingesting meat would throw light on the general question of the cause of the increased metabolism following the ingestion of food.

Despite the mechanical work required to pass the enormous masses of unabsorbed food through the intestinal tract, the postprandial increase in metabolism in the experimental animals was decidedly below rather than above what is found under the same conditions in normal animals. This outcome does not support the hypothesis of "digestive work" as a cause of heightened metabolism. The results show that there is no large energy transformation incidental to segmentation, peristalsis, glandular activity of stomach, liver and intestine, and the movements of the unabsorbed food through the intestinal tract. The attempt to explain the increased metabolism following the ingestion of food by the theory that the increase is a consequence of such movements, is, therefore, not justifiable. Thus the theory of a special action of the products of digestion on the metabolism of the cells is gaining ground through the accumulation of evidence.

HORSES, WOMEN AND CHILDREN

Last Decoration Day, in addition to the customary parades, there were parades of workhorses in which many of the horses wore at their heads the blue, red and yellow ribbons bestowed in recognition of the care and merciful treatment given them by their owners. The latter parades also typified an emancipation—that of the defenseless horse from the overloading, the lashing, the cursing and the rough treatment resulting in sores and bleeding mouths prevalent not many years ago. The

1. Benedict, F. J., and Pratt, J. H.: The Metabolism after Meat Feeding of Dogs in Which the Pancreatic External Secretion Was Absent, Jour. Biol. Chem., 1913, xv, 1.

change has been brought about by a propaganda against cruelty to horses which has been so effective that now not only are drivers humane in their treatment of these faithful servants, but a genuine pride is taken by owners in keeping their horses sleek-coated, with neatly combed manes and tails, superbly harnessed to handsome trucks and, above all, adequately nourished.

Formerly drivers said that they must work their horses to the limit of every ounce of horse-power or that competitors would distance them by doing so. The propaganda which has been carried on for a decade or more has demonstrated that a mercifully treated horse is an economic advantage, because, though more work may be obtained for a brief space from a hard-driven horse, his earlier death ends surely in business loss. So now there is a wholesome tendency among those who own and use workhorses to discourage cruelty. It seems as though the tragedy of the misused horse were passing into history.

Employers of women and children in factory and sweat-shop are beginning to see the same light. Contractors have explained that they must drive thin-blooded, hollow-eyed, consumptive women to death, and employ children not much more than weaned, because of the fierce and utterly merciless competition between manufacturers; but the idea is gradually gaining ground that such doings are an economic mistake and altogether too expensive to indulge in. Besides, the growing social sense of the degradation of those who blood-sweat women and little children causes ostracism, which is hurtful to the pride. The propaganda against these things, which is carried on by such enlightening and discriminating agencies as the American Consumers' League, is doing much to force the public to realize too that "the poverty of Lazarus makes itself felt in the house of Dives"—through infection-ridden garments conveyed from the sweat-shop,[1] and from the bargain counter, to the family of the purchaser; and of course that kind of thing does not pay at all. Humanitarians are seeking and obtaining legislation in behalf of the human weakling. So, as the slave has been emancipated, and to a large extent, the horse, it really seems that the tragedy of the defenseless woman and child will, within a few years, also pass into history.

1. Lazarus and Dives, Current Comment, THE JOURNAL A. M. A., May 31, 1913, p. 1712.

CHEMICAL SIMILARITIES AND BIOLOGIC DIFFERENCES

The recent trend of biologic investigation is tending, in a way, to upset many of the older notions regarding the uniform make-up of the animal tissues. There was a time when the chemical components of blood, for example, were assumed to be essentially alike in all related forms. Blood proteins, muscle proteins and, indeed, tissue proteins in general were believed to have a close similarity which expressed itself in comparable solubilities and physical properties. Thus it came about that such distinctive terms as "albumin" and "globulin" were introduced to designate variations in the behavior of the proteins toward different solvents; whereas there seemed to be no impelling reason to doubt that, broadly speaking, the globulins or albumins of different sources resemble each other closely. Indeed, the belief began to assert itself that the proteins of plant sources also could be put into the same category with the albuminous products of animal origin in so far as they exhibited comparable solubilities.

It has remained for the modern development of what is called immunology to bring out forcibly the incisive fact of marked physiologic differences between proteins of apparently similar properties, using the latter term in its common acceptance of behavior to ordinary reagent tests. The more subtle biologic examination has demonstrated the remarkable specificity of all the individual products of similar or related character. When chemical analysis has not been able to point to distinguishing characteristics, even when it has been carried to the refinement of technic represented by the most up-to-date methods of Emil Fischer and his followers, biologic tests in the field of immunity reactions—the phenomena of the precipitins, anaphylaxis, etc.—have still been able to emphasize the undoubted distinctive features of even such apparently comparable products as the chemically similar proteins of the blood of two animal species.

Even along distinctly chemical lines, however, dissimilarities are beginning to crop out where they were formerly scarcely expected. By way of illustration we may refer to recent investigations of the protein keratin, which forms the basis of hair and similar tegumentary substances. Data collected by Buchtala[1] show that human hair is distinguished among the various keratinous structures by its unusually high content of cystin-yielding components. Sulphur derivatives have long been described as abundant in hair and horny structures; but it is now accurately demonstrated that in addition to the usual amino-acids obtained by the decomposition of proteins in general, human hair may yield nearly 12 per cent. of the sulphur-containing derivative cystin. This unusual proportion differentiates it chemically from all other animal hair and also from the closely related wool of the sheep.

Such findings recall the contention of one of the foremost students of the chemistry of the proteins, T. B. Osborne,[2] that structural differences exist between very similar proteins of different origin; and it is interesting to note that chemically identical proteins apparently do not occur in animals or plants of different species, unless they are biologically very closely related. In this respect the proteins are in marked contrast to the other constituents of plants and animals, for not only do identically the same sugars and fats occur in many species of plants and animals, but many of these

1. Buchtala, H.: Ueber das Keratin der weissen Menschenhaare, Ztschr. f. physiol. Chem., 1913, lxxxv, 246.
2. Osborne, T. B.: Chemistry of the Proteins, Harvey Lectures for 1910-1911, Philadelphia, 1911, p. 72.

are common to both forms of life. It thus appears that the chemical constitution of the proteins is closely connected with the biologic relations of the forms of life which produce them, and that the morphologic differences between species find their counterpart in the protein constituents of their tissues.

THE SENSES OF TASTE AND SMELL

If asked to make a distinction between the sense of taste and that of smell, most of us would probably say that besides differences in the organs with which these manifestations are concerned, the stimuli which call their respective sensations into existence are unlike. It has generally been assumed and taught that taste is excited by substances in the state of solution and that smell is called forth by products in a gaseous or vaporous condition. This view, however, has not remained unchallenged. It has been contended by a number of physiologists that solutions may act as stimuli for the olfactory surfaces, and some have gone so far as to assert that in normal functioning of the sense of smell in man, the odorous particles are caught on the moist olfactory surfaces and dissolved before they can act on the nerve terminals.

The problem of these possible distinctions in the two senses has been taken up in an experimental way by G. H. Parker and Miss Stabler.[1] Selecting as a stimulus a substance—ethyl alcohol—which has both a characteristic odor and a well-marked taste, they have made some comparisons which lead them to conclude that in vertebrates the stimulus for smell is a substance dissolved in the fluids that bathe the olfactory surface, and that in this respect smell and taste are similar. The difficulty in imitating a normal stimulation of the olfactory organs by solutions experimentally introduced into the nose is due, in the opinion of Parker and Stabler, to the inability of the investigator to reproduce the olfactory solvent. This material, the slimy covering of the olfactory surface, is very different from water or even warmed physiologic salt solution. Hence it is not surprising that odorous substances dissolved in these mediums should not act as normal stimuli for the olfactory surfaces. Were it possible to imitate closely the olfactory solvent there might be no difficulty in stimulating the olfactory organs with solutions made up in this solvent.

Both smell and taste are, then, stimulated by solutions, but water introduced into the human nose will cause a temporary loss of the power of smell. Hence, the olfactory organs are not appropriately stimulated by ordinary aqueous solutions. Besides the possible different chemical nature of the stimuli, that for the sense of taste is a relatively strong solution, that for smell a relatively weak one. The bearing of these facts has been summarized by saying that we smell enormously attenuated solutions and taste only relatively strong ones. Taste is used in determining the presence of comparatively large amounts of substance, smell for only the most minute quantities. Hence, taste is inoperative except when the source is very near at hand, usually in the mouth; whereas smell may be active when the source is far distant, the dilution experienced by the stimulating substance in its spread not having been sufficient to bring it below the concentration necessary for stimulation.

1. Parker, G. H., and Stabler, Eleanor M.: Certain Distinctions Between Taste and Smell, Am. Jour. Physiol., 1913, xxxii, 230.

Current Comment

THE CALL OF THE EMPTY STOMACH

If it be true, as was suggested in our recent discussion of the contractions of the stomach attending the sensation of hunger,[1] that the actual stimulus to these is inherent in some local gastric mechanism rather than in general systemic conditions, it might be expected that the hunger contractions would appear as soon as the stomach is empty of food or other substances capable of stimulating the mucosa. It is a physiologically advantageous arrangement whereby the inhibition of the hunger contractions by mechanical and chemical stimulation of the gastric membrane prevents the appearance of these contractions during the period of gastric digestion. It would not be strange, however, if psychic and other factors, such as habit, fatigue, etc., interfered in daily life with the expected manifestation of hunger immediately after the emptying of the stomach. As a matter of fact, most of us probably do not always experience the sensation of hunger at every period when the stomach is empty. There are too many distracting or inhibitory agencies playing on us. Carlson[2] has pointed out that we should look for the closest parallelism between the gastric hunger contractions and the absence of stimulation of the gastric mucosa in infants and young children, that is, before cerebral (and possibly gastric) habits relative to feeding have become established. He has noted precisely what might be anticipated under such uncomplicated conditions. Other things being equal, the more food put into the stomach, the longer the time required for the completion of gastric digestion. An infant given only four ounces of food exhibited phenomena of hunger, that is, called for more, after about two hours. When seven or eight ounces of the same food was furnished, the call for food was delayed for three or four hours. If the child was given a limited amount of food at bedtime it waked up much earlier than when the feeding was carried to the point of satiety. Carlson cites these observations as evidence of the close parallelism between the time of the emptying of the stomach and the appearance of the hunger contractions which initiate the sensation. He suggests that the more frequent calls for food during the day are obviously due to the fact that the gastric hunger

1. The Gastric Movements in Hunger, editorial, THE JOURNAL A. M. A., Sept. 27, 1913, p. 1044.

2. Carlson, A. J.: The Influence of Stimulation of the Gastric Mucosa in the Contractions of the Empty Stomach (Hunger Contractions) in Man, Am. Jour. Physiol., 1913, xxxii, 262.

contractions must reach a certain degree of intensity before they cause the soundly sleeping infant to wake up. Perhaps, after all, the sensation of hunger is a better guide to gastric conditions than has been admitted in the past, so that we ought to cultivate a familiarity with it more intelligently than is the custom among the majority of persons.

PRACTICAL VALUE OF PREVENTIVE MEDICINE—ANOTHER EXAMPLE

The benefits and practical value to human health of modern preventive medicine have again been well illustrated in the army camps which have been established in 1911 and 1913. Certainly the success attending the efforts of army sanitarians at these camps, or "mushroom cities," holds much of promise to the people of both town and country. Such disasters as those connected with the camps during the Spanish War need no longer be feared, and the parents of the young volunteer of future wars may be assured that if he is spared the bullets of the enemy he will not fall a sacrifice to his patriotism through ignorance of how to keep well—that is, provided recently discovered methods of preventive medicine are put into effect, as has been the case in recent camps. In the brief account which appears elsewhere in this issue, of the health conditions in the camp of the Second Division near Galveston, we read of a sanitary competence that is further removed from the insanitary camps of the Spanish War than were the latter from those of the middle ages. The truth is, however, that men are prone to forget lessons learned through long experience if not living under conditions constantly enforcing them. The Mosaic sanitary rules are not new, but those who grow up with no thought of water-supply or sewage disposal are usually helpless when thrown suddenly into a situation where these are not provided. Here the penalty of ignorance has been death. That the men in these camps were selected and of good physique does not make less remarkable the lesson of preparation read in the results of protection from the epidemic of contagious diseases to which such a group of men is liable. The explanation of the results, which include no typhoid or small-pox and but eighteen cases of malaria among twelve thousand men in five months, in a country where these diseases are frequent, is merely the utilization of sanitary methods within the reach of any of our communities, large or small. Just as remarkable is the fact that the average monthly number of cases of venereal diseases among these twelve thousand men is seventy. Preventive medicine applied to a receptive and intelligent population would seem to be a profitable investment for any community, even looking at the matter solely from the dollars-and-cents point of view.

MEDICAL ADVERTISING AND THE NEW ORLEANS *ITEM*

For years THE JOURNAL has maintained that practically all "patent medicine" advertising is fraudulent. This claim has been denied with various degrees of insistence by those interested directly or indirectly in the "patent medicine" business. The "patent medicine" men themselves have, of course, been the most outspoken in their denunciation of THE JOURNAL'S attitude in this matter and, in their attempt to offset the damaging proofs which have been submitted, have accused some of the officers of the Association of practically every crime in the calendar. Moreover, they have not hesitated to purchase those publications whose editorial pages were for sale for the purpose of directing a flood of verbal sewage against those responsible for THE JOURNAL'S policy. Less virulent, if not less dangerous to the public, were those newspapers that offered in their advertising pages a welcome haven to the "patent medicine" frauds and quacks. Even conservative and decent newspapers have held that THE JOURNAL'S attitude in this matter was extreme to the point of fanaticism. Nevertheless, THE JOURNAL'S propaganda is having its effect. One by one newspapers of the better class are adopting THE JOURNAL'S attitude toward the fraudulent "patent medicine." One of the latest of the great papers of the country to do this is the New Orleans *Item*, which, on October 1, put into effect a new set of rules governing the acceptance of medical advertising "copy" to its pages. These rules are reproduced in full in the Propaganda Department of this issue. They are worth reading. The *Item* has had this step under consideration for some months and enlisted the help of THE JOURNAL staff for suggestions regarding the rules it finally adopted. While the *Item*, under its new rules, will not reject all "patent medicine" advertising, it will reject both such as is plainly fraudulent and also such as it may find reasonable grounds to suspect after subjecting it to a most rigid scrutiny. As to the effect that these rules will have on the medical advertising previously carried by the *Item*, this is excellently expressed in a letter recently received from the managing editor. He writes: "Practically the whole business will go out on October 1. I am frank to say that I did not know how bad it was until I had it collected and began to look at it in a critical way." Yet it should be borne in mind that the New Orleans *Item* was no worse—in fact a great deal better—than many of the large metropolitan dailies. The admission, then, that under its new rules practically the whole business of medical advertising will go out is a sermon in itself. The rules, while excellent, are in no sense extreme. If their enforcement causes the rejection of practically all medical advertising copy, then the "patent medicine" business is all that THE JOURNAL has ever said it was—and more.

THE LOW COST OF DYING

This comment has nothing to do with medicine. The matter discussed concerns physicians only to the extent that members of the medical profession are among the leaders of thought in their respective localities. The newspapers of the country recently contained the following brief item of telegraphic news sent out by the Associated Press:

> New York, September 26.—Max Blanck, one of the proprietors of the Triangle Waist Company, whose building was swept by fire in March, 1911, with the loss of 140 lives, was found guilty to-day of having the doors of the factory fastened August 5 of this year. He was fined $20.

One hundred and forty young lives were sacrificed to a horrible and needless death. A heap of charred corpses

just inside a bolted door told the gruesome story. But Max Blanck and his partner went free. Now he is arrested again for having his factory doors locked as they were locked on that awful day in March, 1911. This time Blanck is found guilty and fined twenty dollars! Those good conservative souls with ossified intellects who deplore the present social unrest and the signs of revolt among what we are pleased to call the "lower classes" might, if they would, find in such cases as these a possible explanation for the phenomenon that gives them such concern. Meanwhile, with Franklin P. Adams, in his "Cui Culpa?" we feel like saying:

Pray God we grow not bitter, but it makes the vision red—
This hellish truth of crushed-out youth, this tale of needless dead!
No single name shall bear the blame, go "probe" ye ne'er so deep,
For the Cost of Living rises high, but the cost of life is cheap.

THE NATURE OF THE URINE SUGAR IN PENTOSURIA

The occurrence of pentose in the urine under certain anomalous and little-understood conditions has been known more than twenty years since its presence was first discovered by Salkowski. For many years the precise nature of the five-carbon sugar actually excreted in pentosuria has been debated. Despite the growing number of cases which have been detected and have found their way into medical literature, there still is no unanimity on the chemical feature just referred to. So long as the exact chemical structure of the carbohydrate eliminated is not definitely determined there is little prospect of any satisfactory explanation of this rather unique perversion of metabolism. Until quite lately the view has prevailed that the excreted sugar of pentosuria is arabinose. Recently Elliott and Raper[1] suggested the possibility that the urine pentose sugar is ribose. This has now been further emphasized by new observations[2] leading to the same conclusion, though it is still admitted that perhaps more than one type of pentosuria may occur. From the point of view of tissue chemistry the appearance of ribose is more readily interpreted, since this pentose has been demonstrated to be a constituent fragment of some of the nucleic acids.

WHY MEDICAL ADVERTISING IS GENERALLY FRAUDULENT

At different times, we have been asked the question: Why is medical advertising usually fraudulent? This question has been answered to the best of our ability, but we have never answered it any better than does *Standard Advertising* in its issue of September, 1913. This magazine is carrying on a campaign for clean advertising. Here is its explanation:

"In the orderly working out of our campaign in favor of clean publications some criticism has come to light because, according to our notion, medical advertising is not legitimate.

"The contention that a doctor, or the owner of a proprietary remedy, may be as honest as a regular medical practitioner is true. He *may be*. But if he told the truth about his service he would make no advertising profit.

"No advertising doctor possesses any secret which the profession does not possess. He must make believe some unusual advantage or his advertising will not pull.

"Again, sick people are, as a rule, gullible. They are discouraged, disheartened, and in no condition to analyze. They grab at straws, and the main thing which medical advertisers do is to make the patient 'feel better' regardless of the permanent effect on the system.

"This brings about the 'dope' which is so much in evidence in advertised remedies and treatments.

"*Standard Advertising* has no criticism to make of any doctor simply because he advertises, but the facts stand out clearly that if he makes his offer in keeping with the truth he will not attract business, and for that reason medical advertising is at least 90 per cent. fake advertising."

CHILD LABOR IN GEORGIA

At least for another year 10-year-old children, who can neither read nor write, will lend their efforts to increasing the fortunes of the cotton-mill owners of Georgia. The Anderson bill, which raised the age limit for working children to 13 years for 1914 and provided for a further increase to 14 years in 1915, has been sidetracked in the legislature, and the session is about to close. Georgia has made practically no advances along this line since 1906. This is not creditable to the traditional chivalry and civilization of the South.

Medical News

ILLINOIS

Personal.—Dr. John H. Wedig, Granite City, was seriously burned on the face and hands September 12 when the engine of his automobile caught fire, destroying the machine.——Dr. J. A. Campbell, recently appointed superintendent of the Watertown Hospital, took charge September 14.——Hastings H. Hart has resigned as state superintendent of the Illinois Children's Home and Aid Society.——Dr. S. V. Balderston, Evanston, has resigned as commissioner of health.

Medical Society Refuses to Nominate Evanston Commissioner of Health.—The Evanston Branch of the Chicago Medical Society has declined to accede to the mayor's request for the nomination of a commissioner of health in view of the facts that the city is unable to remunerate adequately the service of a physician of the type required, and that the honor of the office has been lowered by placing the health department under control of a new officer, the director of public safety.

Prevention of Tuberculosis.—Peoria has passed an ordinance for the expenditure of $20,000 for a municipal tuberculosis hospital.——The La Salle County supervisors have appropriated $3,200 for a county sanatorium for tuberculosis patients. The La Salle County Anti-Tuberculosis League was organized at Ottawa, September 14. The following officers were elected: president, William Bedford, La Salle; vice-presidents, Drs. E. W. Weis, Ottawa; William Schoenneshofer, Lostant; Roy Sexton, Streator; E. P. Cole, Mendota; A. J. Weirick, Marseilles; Benjamin J. Nauman, Peru, and Fred Guthrie, La Salle.——The Lake County supervisors are expected to select a 10-acre tract of land near Waukegan for a tuberculosis colony.——The Illinois State Association for the Prevention of Tuberculosis will hold its annual meeting in connection with the meeting of the Illinois State Conference of Charities at Rockford, October 13.

Chicago

Personal.—Dr. W. J. Anderson has resigned as night warden of the county hospital.——The sixty-sixth anniversary of the birth of Dr. Alfred C. Cotton was celebrated, September 25, at the Hotel Sherman by a banquet given in his honor by his associates in the Chicago Medical Society, who presented him with a diamond-studded gold watch.——Dr. C. Volini has been

1. Elliott and Raper: Jour. Biol. Chem., 1912, xi, 211.
2. Levene, P. A., and LaForge, F. B.: Note on a Case of Pentosuria, Jour. Biol. Chem., 1913, xv, 481.

appointed by Governor Dunne as member of the West Park commission.——Dr. William Wild has been appointed director of the Nebraska State bacteriologic and pathologic laboratory.

Relief Work for Tuberculous Children.—Trustees of the Municipal Tuberculosis Sanatorium have arranged to assist the Elizabeth McCormick Memorial fund with $7,000 for this season's work in open-air schools and other relief work for children affected with tuberculosis.

Tuberculosis Sanatorium to Be Built.—The cornerstone of the Sanatorium for Advanced Cases of Tuberculosis, which has a 10-acre tract at Fiftieth and Belmont avenues, will be laid October 19 under the auspices of the Jewish Consumptives' Relief Society, which is endeavoring to raise $50,000 for the new work. It is intended to make the institution one of the best in America.

INDIANA

New Officers.—Second District Medical Association at Washington: president, Dr. A. T. Custer, Linton; secretary, Dr. T. Roy Cook, Bloomfield.

Personal.—Dr. James B. Bobbitt, Indianapolis, has been appointed assistant surgeon in the Medical Reserve Corps of the United States Navy.——Dr. John S. Dukate, Alford, celebrated his ninetieth birthday anniversary September 21. ——Dr. A. G. Pohlman of the faculty of the Indiana University Medical Department has been elected head of the department of anatomy in St. Louis University.

Canvass for Hospital Funds.—The Methodist Episcopal Hospital, Indianapolis, on account of the enormous demand for rooms, has decided to build a new wing and also a nurses' home that will accommodate 100 nurses, and also provide additional facilities for labor work. At a recent meeting of the board of trustees, Hon. Charles W. Fairbanks was elected as chairman and teams were organized to raise $250,000 in a ten-day campaign.

Tuberculosis Notes.—The Floyd County Board of Commissioners, at a meeting in New Albany, denied the petition of the New Albany Anti-Tuberculosis Society for an appropriation of $20,000 or any other amount to establish a tuberculosis hospital in New Albany. The society has been offered a 40-acre tract of land on the knobs back of New Albany as a site for the proposed tuberculosis hospital, and will endeavor to raise $2,000 for the erection of an administration building. ——The business men of Portland have raised sufficient funds to erect a tuberculosis cottage on the Jay County fair grounds. This cottage will eventually be moved into the city and placed in charge of a trained nurse.

MARYLAND

Cooperative Purchasing Committee.—The Cooperative Purchasing Committee of the five state hospitals for the insane which has just been organized, will award bids for supplies for the five institutions for three months. This committee consists of the superintendent of each of the state institutions for the insane and has direct charge of the purchasing of all supplies.

Investigation of Trachoma.—Surgeon-General Herbert Harlan, a member of Governor Goldsborough's staff, will leave Baltimore shortly for Knott County, Kentucky, where he will begin an investigation of the prevalence and cause in that community of trachoma. Dr. Harlan will go under the direction of the Surgeon-General of the United States Public Health Service. He will outline a campaign to be carried on by the Knott County physicians.

Will Study Infectious Diseases.—Health Commissioner Gorter has gone to New York to inspect the health department of that city and to visit its hospital for minor infectious diseases, and will stop in Philadelphia for a similar purpose. He is seeking information to be used in designing a new ward building at Sydenham, to cost $30,000, and in planning quarters for the local health department. The building at Sydenham is to be for the treatment of measles.

Report on Tropical Diseases.—A complete report on tropical diseases prevalent in Ecuador and adjacent republics is being made to Superintendent Smith of Johns Hopkins Hospital, by Dr. A. W. Sellards of the Hopkins staff, who returned recently from an expedition to South America to study tropical ailments. Dr. Sellards was the representative of Johns Hopkins Hospital in the expedition sent out by the Harvard Medical School, under the direction of Dr. Richard P. Strong.

Medical College Opening.—So great was the rush for matriculation, that the lists for the coming term of the Johns Hopkins Medical School were closed two months ago and applicants have been turned away every day since. Ninety was the number set for each class, and when this number was reached, no more students were admitted. Practically all of the new students are from the United States; there being two from Canada, two from Scotland and one from China. There are seventy women among the four classes.

New Buildings for Hospitals.—Work has been commenced on the John Hubner Psychiatric Hospital at the Springfield State Hospital. The construction and equipment of this building will cost about $150,000. It is to be used as a reception hospital and is well equipped with all modern facilities for the study and treatment of mental cases.——Contracts have been awarded and ground broken for the first of a series of buildings for the Eastern Shore State Hospital for the Insane at Cambridge. It is expected that the building will be completed by spring for the reception of at least 200 patients.—— A new cottage for private patients has just been completed at the Relay Sanitarium.

MINNESOTA

Reorganization of Minneapolis City Hospital Staff.—The reorganization of the Minneapolis City Hospital staff has been completed, the staff being divided into two groups, the first composed of men on the medical staff of the University of Minnesota, and the second group of men not on the university staff.

University Clinics to Be Continued at St. Paul City and County Hospital.—The controversy between the University of Minnesota medical school and the board of control of the City and County Hospital has been satisfactorily adjusted, the board approving the appointment of the university staff surgeons and physicians recommended by President Vincent and continuing the clinics at the hospital.

Measures Against Tuberculosis.—The county commissioners of Hennepin County, in which Minneapolis is located, have tentatively appropriated $50,000 for a county tuberculosis hospital, for which the state will donate $50,000 and pay $5 a week for the care of each patient.——The new tuberculosis sanatorium of Otter Tail County, built at Otter Tail Lake, will be ready to receive patients by October 10.——The county commissioners of Lyon County have appropriated $6,000 to establish and maintain a tuberculosis sanatorium, provided that at least three other counties shall contribute their share toward the cost of such a sanatorium.

NEW YORK

New York City

Opening of College of Physicians and Surgeons.—The College of Physicians and Surgeons of Columbia University held its opening exercises on the morning of September 24, at which time Dr. George E. Brewer, professor of clinical surgery, made the opening address on "Standards of Success in the Practice of Medicine."

Course in Sex Hygiene for Teachers.—It is announced that New York University has established a course in sex hygiene for students in the school of pedagogy. The course will consist of ten one-hour lectures. The lecturers appointed for this course are Dr. Edward L. Keyes, Jr., Dr. Rosalie Slaughter Morton and Thomas M. Balliet, Ph.D., dean of the school of pedagogy of New York University.

Milk Stations End Twenty-Second Year.—The infant milk stations founded and maintained by Nathan Straus have completed their twenty-second year. There are now eighteen of these stations in Manhattan and the output during the past year was 2,193,210 bottles of pasteurized milk and 1,545,419 glasses of milk were served from the booths. During the past twenty-two years 35,000,000 bottles of pasteurized milk have been served to the babies of Manhattan. The output for the first year, 1892, was 34,000 bottles.

Special Classes for Stutterers.—The Board of Superintendents of the Board of Education has issued special instructions for parents and children for the cure of stuttering. They state that the public schools are proving day by day that the habit of stuttering can be cured. A speech-improvement class has been formed and parents are urged to see that children afflicted with stuttering seek admittance. Parents are instructed as to the methods that they may use in order to cooperate with the school and to supplement the work of the school class.

Personal.—Dr. Charles F. Bolduan has been appointed lecturer on hygiene and sanitation in the medical department of New York University.——Dr. Walter Bensel is to be retired

as sanitary superintendent of the Board of Health on October 1, under the law which permits retirement at the end of twenty years' service at a pension not to exceed one-half salary.——Dr. Walter Mendelson has been named the fourth alumni member to succeed the late J. Pierpont Morgan in the board of trustees of Columbia University. Dr. Mendelson is the first alumni member of the board to be chosen from the College of Physicians and Surgeons.——Dr. John W. Dowling, while making a professional visit in Easton, Pa., was stricken with apoplexy and is lying in a serious condition at the Easton Sanatorium.

Typhoid Outbreak Checked.—It is stated that the typhoid epidemic on the East Side is now well in hand and that the number of cases reported is rapidly decreasing. From September 3 to September 25 there were 271 cases reported on the East Side from the Battery to Fortieth Street, while the number of cases reported from other parts of the city was below normal. This outbreak is pointed to as a lesson against the use for drinking purposes of any milk other than that designated as "Grade A" or of pasteurized milk that has been carefully guarded against contamination after it has been pasteurized. Dr. Lederle has expressed the opinion that anti-typhoid vaccination, if made compulsory as vaccination against small-pox now is, would make such an epidemic impossible, but he does not think that the public is educated to the point where such a step would be practical.

Improvements at the Otisville Sanatorium.—A new shack which will accommodate twenty-four children has recently been opened at this institution and it is hoped that two new pavilions for women which are in the process of construction will be ready for occupancy within a few weeks. These additions will provide for 100 patients and will bring the total capacity of the institution up to 600. The corporate stock budget recently passed provides among other things funds for the construction of a staff house and a nurses' home, and $75,000 has been made available as a general building fund, part of which will be used in constructing additional pavilions for both men and women. Early in the present year a number of the patients were treated by means of artificial pneumothorax, and up to date some twenty have been treated by this method. The results obtained have been quite generally encouraging.

Food Inspection.—For the purpose of guarding the city's food supply a laboratory of eight chemists and seven technical assistants is employed, together with four bacteriologists and ten assistants. During the year 1912 nearly 24,000,000 pounds of meat, fruit, eggs, fish and other foods were condemned and destroyed. There were 423,732 separate inspections made of premises where meat and other foods were handled and sold. Of 1,409 samples of food procured for anaylsis 421 were found adulterated. During the year 2,260 arrests were made by the Division of Food Inspection and in 1,911 cases fines to the amount of $14,070 were imposed by the courts. During the first six months of 1913 fines to the amount of $10,923 had been obtained. These figures were exclusive of milk inspection. There were 41,292 inspections of dairies, and 19,577 quarts of adulterated milk were destroyed, 1,763 arrests made, and $11,397 was collected in fines.

NORTH CAROLINA

Malaria Prevention.—Surgeon Henry R. Carter, U. S. P. H. S., accompanied by Dr. John C. Rodman of Washington, N. C. (local U. S. P. H. S. officer) has just returned to his station after visiting a number of eastern Carolina towns and holding public meetings in the interest of increased professional and public activity in the prevention of malaria.

New Staff Provisions.—Following recent consultations of the advisory board and the active board of managers of the Mission Hospital at Asheville, and growing out of the manifest professional dissatisfaction of having a public hospital with a permanent and non-rotating staff it is officially announced that, beginning with the annual election in November, three new members will be added to the staff biennially. In this way a portion of the staff at least will be renewed each two years and the objections to further appropriations to one of Asheville's most worthy charities will doubtless be removed.

Quick and Good Work.—The handsome annual octavo volume of Transactions of the State Medical Society of North Carolina, edited by the secretary, Dr. John A. Ferrall, appeared the last week of August, within seventy days of the meeting, containing a full report of the June session of the state society at Morehead City, the various papers presented, obituaries of deceased members of the profession, proceedings of the State Board of Health, State Association of Public Health Officers and a number of tables containing valuable data relative to the society.

State Sanatorium Closed.—By order of the board of directors the State Sanatorium for Tuberculosis at Montrose was closed September 15. Dr. M. Eugene Street, superintendent, has also tendered his resignation, which has been accepted by the board. Additional improvements are being made and the directors hope to fill the vacant superintendency and reopen the institution by the middle of October. Following the closing of the sanatorium there was held a called session of the State Board of Health in Raleigh last week, where a proposition from the sanatorium board of trustees was considered by the Board of Health. By mutual consent a bill will be introduced in the present special session of the legislature providing that the members of the State Board of Health shall become *ex officio*, the board of directors of the State Sanatorium for Tuberculosis, and abolishing the present board of sanatorium directors. With the entire control of the State Tuberculosis Sanatorium in its hands, it is the purpose of the State Board of Health to inaugurate a statewide campaign of education for the management of tuberculosis, and especially to secure for as great a number of early stage patients as may be possible a brief stay in the state institution where opportunities for learning how to care for themselves may be afforded. The plans of the Board of Health meet with the cordjal approval of present sanatorium directors, who will cooperate in the efforts to secure larger results from the state's investment at Montrose.

PENNSYLVANIA

New Hospital.—As a memorial to his wife, the late Stella M. Elkins, George W. Elkins is erecting at Abington a modern hospital. Announcement of the action of Mr. Elkins was made September 25. It had been planned to build the institution by the aid of public subscription. The cornerstone was laid by Mr. Elkins on September 26, and the hospital will be called the Abington Memorial Hospital, instead of the Abington General Hospital, the name selected by those who started the movement of its erection. The gift of Mr. Elkins has been accepted by the board of trustees, and is said to be about $100,000.

Meeting of State Medical Society.—The meeting of the Medical Society of the State of Pennsylvania was held in Philadelphia, September 22 to 25. Over one thousand registered. The visitors were entertained the day preceding the opening, and the day after the closing of the scientific meeting by clinics in all of the prominent hospitals of the city. Much interest was manifested in the resolution recommending the reporting to the health authorities of all forms of venereal disease. This resolution was adopted by the society. The next meeting of the society will be held in Pittsburgh. The following officers were elected: president, Dr. E. B. Heckel, Pittsburgh; vice-presidents, Drs. Henry D. Jump, Philadelphia, J. B. Anderson, Waynesboro, J. H. Wilson, Philadelphia and J. B. McMurray, Washington; secretary, Dr. C. L. Stevens, Athens (reelected); assistant secretary, Dr. William H. Cameron, Pittsburgh; treasurer, Dr. George W. Wagoner, Johnstown.

Philadelphia

Course in Eugenics for School Girls.—A special course in eugenics, in connection with the study of physiology, has been devised for the students in the high schools for girls of this city.

Report of Membership in State Society.—The report of the secretary of the state medical society, Dr. C. L. Stevens, at the sixty-third annual meeting of the society, shows that the membership numbers 6,044. This is a gain of 271 over the previous year.

Dr. Neff Asks for Typhoid Experts.—Dr. Neff, director of the Department of Health and Charities, has asked the Civil Service Commission to suspend competitive examinations in order that he may obtain the service of either Prof. William T. Sedgewick or Prof. George C. Whipple of Boston, in abating the epidemic of typhoid fever now prevailing in this city.

Medical Colleges Open.—During the past week all the medical colleges of this city, excepting the medical department of the University of Pennsylvania, were opened for the session of 1913 and 1914. In nearly all there was a falling off in the number of students admitted in comparison to previous years. In some, where the entrance requirements were originally forced, the freshman classes have fallen off 30 per cent.

Indeed, the reduction in the number of admissions may reach 50 per cent.

Personal.—Dr. Robert C. Parrish has been appointed supervisor of the Public School Medical Inspection Corps, to succeed Dr. Ralph H. Spangler.——Dr. Robert J. Hunter has been appointed by Dr. Neff to the Corps of Medical Inspectors.——Dr. Charles F. Nassau has been appointed professor of applied anatomy in Jefferson Medical College to succeed the late Dr. George McClellan.——Dr. Morris Jastrow has accepted an invitation from the Royal Society of Medicine of England to deliver the lecture of "The Hospital of Early Medicine." Professor Jastrow sailed for England September 27.——Dr. M. B. Hartzell has been made assistant diagnostician and consultant for the Bureau of Health, to succeed Dr. J. F. Schamberg.

GENERAL

Health Officer Goes to Refugee Camps.—Dr. E. S. McCain, who is in charge of quarantine work of the State Board of Health at Galveston, has proceeded to Tampico, Mexico, to assume charge of the refugee camps at that place.

Polish Physicians Hold Meeting.—The first annual convention of the Polish Physicians' Alliance of America was held in Detroit, September 19 and 20. Dr. Francis E. Fronczak, Buffalo, N. Y., was elected president; Dr. Stanislaus N. Borowiak, Buffalo, N. Y., secretary, and Dr. Edmund P. Koneczny, Detroit, Mich., treasurer.

Repeated Physical Examination of Engineers Urged.—Rigid annual government physical and mental examinations of every government engineer in the United States, and of others to whom are entrusted the safety of interstate travelers will be suggested to Congress by Surgeon-General Rupert Blue, U. S. P. H. S., and Congress will be asked to frame a statute placing this work under the department of commissioners and the officers of the Public Health Service.

Choose New Emblem.—The special committee of the National Association for the Study and Prevention of Tuberculosis, of which Dr. Henry Barton Jacobs is chairman, has announced the exact proportions of the double red cross, the international tuberculosis emblem adopted for use. The design chosen is one in which all the arms are pointed, the two cross arms being the same length. The width of the cross is taken as the unit, the length of the lower leg being 7 units, the arms 3 units on either side, the points above the arms 2½ units, and the distance between the arms 1½ units.

Meeting of Obstetricians and Gynecologists.—At the twenty-sixth annual meeting of the American Association of Obstetricians and Gynecologists, held in Providence, R. I., September 16 to 18, the following officers were elected: president, Dr. Charles N. Smith, Toledo, Ohio; vice-presidents, Dr. Hugo O. Pantzer, Indianapolis, Ind., and Dr. J. H. Branham, Baltimore, Md.; secretary, Dr. E. Gustav Zinke, Cincinnati, Ohio (reelected); executive council, Drs. Charles L. Bonifield, Cincinnati, Ohio, Herman E. Hayd, Buffalo, N. Y., John W. Keefe, Providence, R. I., X. O. Werder, Pittsburgh, Pa., Miles F. Porter, Fort Wayne, Ind., and Louis Frank, Louisville, Ky.

Prevention of Infant Mortality.—The fourth annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Washington, D. C., November 14-17, with headquarters at the Willard Hotel. The subjects which will be discussed will include: eugenics, pre-natal care and instruction of mother, adequate obstetrical care, problems of infant hygiene and infant feeding, standards of training for infant welfare nursing, continuation schools of homemaking, the relation of vital statistics to plan for social betterment and the relation of the plans for the conservation of infant life to the general ideals of conservation.

The Missouri Valley Physicians' Meeting.—The twenty-sixth annual meeting of the Medical Society of the Missouri Valley was held in the Rome Hotel, Omaha, September 18 and 19. The address on surgery was delivered by Dr. Charles H. Mayo, Rochester, Minn., and the address on medicine by Dr. Alfred C. Croftan, Chicago. The following officers were elected: president, Dr. Flavel B. Tiffany, Kansas City, Mo.; vice-presidents, Drs. Granville N. Ryan, Des Moines, Iowa, and Austin McMichael, Rockport, Mo.; secretary, Dr. Charles Wood Fassett, St. Joseph, Mo. (reelected), and treasurer Dr. Oliver C. Gebhart, St. Joseph, Mo. Lincoln, Neb., was selected as the place for the semi-annual meeting.

Railway Surgeons Elect.—The annual meeting of the Pennsylvania Railroad Surgeons' associations, and of the lines East and West, was held in Atlantic City, September 22 and 23. The associations voted to hold their meetings next year in the same place and the following officers were elected: Lines East.—President, Drs. George L. Romine, Lambertville, N. J.; vice-presidents, Herbert F. Gillette, Cuba, N. Y., and William Martin, Atlantic City; secretary, Dr. A. W. Colcord, Clairton, Pa.; treasurer, Dr. Joseph C. Egbert, Wayne, Pa. Lines West.—President, Dr. H. P. Linsz, Wheeling, W. Va.; vice-presidents, Drs. Hiram J. Coon, Colfax, Ind., and Charles Graefe, Sandusky, Ohio; secretary, Dr. J. D. McCann, Monticello, Ind.; treasurer, Dr. O. E. Holloway, Knightstown, Ind.

New Officers of Public Health Association.—At the annual meeting of the American Public Health Association, held in Colorado Springs, September 9 to 12, the following officers were elected: president, Dr. W. C. Woodward, Washington, D. C.; vice-presidents, Drs. John F. Anderson, U. S. P. H. S., Washington, D. C., Mario Labredo, Havana, Cuba, and C. J. Hastings, Toronto, Ont.; secretary, Prof. Selskar M. Gunn, Boston (reelected); treasurer, Dr. Livingston Farrand, New York City (reelected). Lee K. Fraenkel, New York City, was appointed chairman of a new committee to unite more closely the sociologic section of the association with that of vital statistics, and also to interest large corporations in the industrial health campaign now being urged. The Section of Public Health Officers elected Dr. C. V. Chapin, Providence, R. I., chairman, Dr. Nolan Pauchan, Ottawa, vice-chairman, and reelected Dr. E. C. Levy, Richmond, Va., secretary, and Dr. A. S. Fell, Trenton, N. J., recorder. Jacksonville, Fla., was selected as the next place of meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

Seney Hospital, Brooklyn, N. Y., $1,000 by the will of Mrs. Emmalissa Pervis.

Auburn (N. Y.) City Hospital, $20,000, Women's Hospital in the State of New York, $5,000, Presbyterian Hospital, New York City, $5,000 by the will of Homer N. Lockwood.

University of Pensylvania Hospital, $5,000, for the maintenance of a bed in the orthopedic ward in that institution, by the will of Fannie H. Dixon.

Invalids' Home and Maternity Hospital in Philadelphia, $5,000, by the will of Cornelius A. Lane.

Hahnemann Hospital, $5,000, by the will of Margaret H. Frederick.

St. Louis Medical Society, residue of the estate of $50,000 after payment of certain legacies, to set up and maintain a room in memory of her son, Hugo Barscher, by the will of Mrs. Franziska Barscher, St. Louis.

Sibley Hospital, Washington, D. C., $50,000, donated by George O. Robinson, Detroit, in the name of the Women's Home Missionary Society of the Methodist Church.

Newport (R. I.) Hospital, $4,000, donated by Mrs. William G. Weld, Boston, to establish a free bed in memory of her husband, and $1,000 donation from Stewart Duncan.

Infectious Diseases.—During September the chief interest concerning infectious diseases centered, perhaps, in the annual conference on pellagra in South Carolina. The apparent large increase and wider distribution of pellagra, both in this country and abroad, has made it of the highest importance among the infectious diseases. Prof. Louis Sambon, of the London School of Tropical Medicine, who attended the conference, reported that over fifty cases of pellagra had been discovered in Great Britain, where previously it was thought the disease did not exist. Cases have been reported more recently from The Shetland and Hebrides Islands. The comparatively recent discovery of several thousand cases of the disease in Mississippi is also an additional index of its great prevalence. The pellagra conference developed nothing particularly new as to the etiology of the disease. The infectious theory is probably gaining stronger hold through the intensive studies of the Thompson-McFadden Commission in South Carolina and others studying the disease, and the theory of the rôle of insects in its transmission is probably gaining strength. While Professor Sambon still adheres to the insect theory of transmission, he does not insist that the simulium, or sand-fly, is the only insect involved. Others of the conference were inclined to the belief that flies were the more probable conveyors.——But few cases of poliomyelitis have been reported throughout the country during the month. The season of 1913 has not recorded many cases of poliomyelitis. With the opening of the school season there has been a slight increase in the number of scarlet fever and diphtheria cases reported.——Under date of September 22, cholera is reported from Kherson, Odessa, and Sebastiaport, Russia, and from Bucharest, Roumania, from which place 1,137 cases with forty-five deaths have been reported.——Two fatal cases of plague have been reported from California, one in a laborer at Martinez during the present month, and the other in a Japanese woman, a field-worker, in San Benito County earlier in the summer. The diagnosis in both cases was confirmed by Dr. J. D. Long and Dr. D. H. Curry of the U. S. Public Health Service at San Francisco.

CANADA

Personals.—Drs. James Kerr of the Medical Inspection Department of the Board of Education of Great Britain is in Toronto in connection with inspection in the schools of Ontario.——Dr. F. L. De Verteuil, Vancouver, a short time ago had a $3,500 piece of radium stolen from his surgery. The thief returned it through the mails.——Dr. W. H. B. Aikins, Toronto, will be chairman of the organization committee of the eighteenth international congress, to be held in 1917, and Dr. H. B. Anderson, Toronto, will be the secretary.

Saskatchewan Medical Society and the Commissioner of Health.—The Saskatchewan Medical Association passed a resolution calling on the provincial government to dismiss from office the commissioner of health, Dr. M. M. Seymour, giving as its reason for such resolution general incompetence. The government has asked for specific charges. Dr. Seymour has held this office for several years, and is the only instance of a provincial government in Canada having a health officer with a cabinet rank. Evidently the Canadian Public Health Association considers Dr. Seymour a competent man, as they have just elected him as their president.

Canadian Public Health Convention.—Dr. J. W. S. McCullough, secretary of the Ontario Board of Health and past-president of the Canadian Public Health Association, has just returned to Toronto, after attending the third annual conference in Regina, Sask., September 18, 19 and 20. Dr. McCullough states it was one of the best meetings yet held, being largely attended. The district officers of health of Ontario, ten in number, after attending the meeting of the American Public Health Association, went on to Regina in a body. The association adopted a resolution calling for the provision of all general hospitals receiving government grants for treatment of advanced cases of pulmonary tuberculosis and ordered that a copy of the resolution be forwarded by the secretary to all provincial governments. Another resolution passed was one urgently requesting the Dominion government to take into consideration the danger to the public health through the increasing number of immigrants flocking into Canada from European countries. The following officers were elected: president, Dr. M. M. Seymour, commissioner of health for Saskatchewan; vice-presidents, Dr. J. D. Page, Quebec, Mr. T. Aird Murray, Toronto, and Dr. Duncan Anderson, Toronto; secretary, Major Lorne Drum, M.D., Ottawa; treasurer, Dr. Geo. D. Porter, Toronto. Fort William and Port Arthur were selected as the places of meeting in 1914.

LONDON LETTER

(From Our Regular Correspondent)

London, Sept. 13, 1913.

Australasian Medical Congress

Arrangements have been made for a medical congress to be held in Auckland, New Zealand, in February. It is anticipated that about 300 local physicians and 600 visitors will attend. The social events in connection with the congress will include a harbor excursion, a motor run to Titirangi (under the auspices of the city council), several "at homes," a dance to be given by the president of the Auckland branch of the British Medical Association, the public reception on the first night, an al fresco entertainment by the New Zealand branch of the British Medical Association, a public lecture by Professor Berry of Melbourne, and on the final night a dinner. It is anticipated that at the conclusion of the sittings the majority of the visitors will go to Rotorua as guests of the government.

The Problem of Tropical North Queensland

The northern part of the Australian continent is tropical and but sparsely populated by the white man. The problem whether it can be rendered habitable by him has become an important one with Australian politicians, whose policy, "a white Australia," may be menaced by the rise of competition of the yellow races. Inspired by the success of Panama, an institute of tropical medicine has been opened at Townsville by the governor of Queensland, Sir William MacGregor, who is a physician and has distinguished himself as an administrator when governor of various colonies—Newfoundland, Lagos and Papua. Dr. Anton Breinl, a well-known investigator of the Liverpool School of Tropical Medicine, has been appointed director. In opening the institute, Sir William MacGregor said the policy of reserving tropical Australia as a home for the purely white race was one of the most interesting problems of modern statesmanship. The final proof whether this was practicable time alone could show, as history did not supply experience to settle the question. If the policy was to succeed special inducements must be held out to settlers, for the tropics were not regarded as the most congenial places for permanent occupation by Europeans. The main problems were whether conditions of light and heat would permit of the establishment of a working white race. The diseases were a secondary consideration, because they were only incidents, and could be cured. Means, however, could be devised to mitigate the effects of light and heat on the white race. Excellent examples as to how disease could be cured were shown at Panama and West Africa. To follow these examples there more doctors and more nurses were necessary, and absolutely everything necessary should be done to lessen the labor of the white woman in the north and make life more comfortable.

A Difficult Case Under the Workmen's Compensation Act

The following case has given rise to much litigation under the Workmen's Compensation Act. A man was employed in coaling a ship with baskets from a lighter. While he was holding a basket between his body and a pile of coal a fall or rush of coal either struck him in the abdomen or forced the basket against it. He ceased work, being in great pain, and went home, where he was attended for four days by his own physician, who finally sent him to the infirmary, where an operation was performed. This showed a perforation of the bowel and also the fact that the patient had been suffering for some unascertained period from appendicitis. Three days after the operation he died. At the post-mortem examination a second perforation of the bowel was found. The judge made an award in favor of the dependents of the deceased, holding that a weakened bowel had been the result of his proved physical condition and age, and that the accident had injured the weakened bowel, which otherwise might have lasted for a considerable time without interfering with his work. The injury gradually caused perforation, and so accelerated death. The medical evidence with regard to the second perforation was that it could not have occurred earlier than twelve hours after the operation referred to. The court of appeal, after hearing argument, was divided, the Master of the Rolls and Lord Justice Swinfen Eady being of the opinion that although there was an accident and although death took place after it there was no evidence to connect the death with the accident. Such connection, the master of the rolls said, must be established by direct evidence or by legitimate inference, and must be something more than guess, conjecture or surmise. Death was not ascribed either to the appendicitis or to the perforation discovered by the operation, but to the second perforation. This had taken place after the operation and there was no evidence connecting it with the accident. The legitimate inference was that the perforation did not result from the accident. There was no trace of such a bruise as would have followed a serious blow. Medical evidence showed that a blow crushing the body would be required to produce perforation of the bowel. The first perforation was apparently due to the appendicitis and there was no reason for holding that the second was not due to the same cause. Lord Justice Swinfen Eady, in concurring, took the view that the evidence was equally consistent with the accident having caused the death or with it not having done so, in which case the onus of proving that the accident was responsible lay with the applicant. Lord Justice Kennedy, in dissenting, considered that the conclusion which the judge in the lower court had arrived at "with the peculiarly valuable assistance of the medical accessor," was justinable. Looking at the evidence broadly, the workman's death had been accelerated by the accident. Thus by a majority judgment given in favor of the employers.

The British Association for the Advancement of Science

The annual meeting of the British Association for the Advancement of Science was held in Birmingham. The attendance numbered 2,500, and many scientists of international reputation were present. The University of Birmingham conferred the honorary degree of LL.D. on the following visitors: Madame Curie, Prof. H. A. Lorentz of Leyden, Dr. S. A. Arrhenius of Stockholm, Professor Keibel of Freiburg and Prof. R. W. Wood of Baltimore. To Madame Curie, the discoverer of radium, Sir Oliver Lodge paid a high tribute, describing her as "the greatest woman of science of all time." Many of the subjects discussed belonged to the ancillary medical sciences and therefore are of professional interest.

DEATHS FROM COCAIN INJECTIONS

In the section of physiology a report was presented by Sir Frederick Hewitt dealing with the subject of anesthetics in which he referred to three coroners' inquests held during the first five months of the present year on persons who had died as the result of cocain injections administered by unregistered dentists. At present there are in this country 20,000 unregistered dentists, while there are only 5,000 qualified ones. There is no law to prevent any one from practicing dentistry, though an unqualified person is prohibited from describing himself as "dentist."

THE ORIGIN OF LIFE

A large audience attended a combined meeting of the sections of physiology, zoology and botany for a discussion on the origin of life. At the present meeting the subject was introduced by Dr. B. Moore, professor of biochemistry in the University of Liverpool. He regarded the problem as an experimental one and said that he could demonstrate a step which connected inorganic with organic matter. The world of living plants and animals depended on the synthesis of organic from inorganic compounds by the chlorophyl of plants acting as a transformer of light-energy into chemical energy. This state of affairs must have evolved from something more simple, for chlorophyl was one of the most complex of known organic substances. In considering the origin of life the start must be made in a purely inorganic world. As the result of eighteen months' experimental work he believed that he had obtained evidence of the first step in organic evolution. When dilute solutions of colloidal ferric hydroxid or the corresponding uranium compound are exposed to strong sunlight, there are synthesized the same compounds as are formed in the first stage of organic synthesis by the green plant—formaldehyd and formic acid. If now they considered a planet cooling down and exposed to sunlight, at first elements only would be present. As it cooled binary compounds would form and then simple crystalloidal salts. By the union of single molecules into groups of fifty or sixty, colloidal aggregates appeared. As these increased in complexity they became more delicately balanced (labile). They were easily destroyed by sudden changes in environment, but within certain limits were peculiarly sensitive to energy changes and could take up energy in one form and transform it into another. These labile colloids took up water and carbon dioxid and, utilizing the sunlight streaming onto the planet, produced the simplest organic structures. Next these structures reacting with themselves and with nitrogenous inorganic matter, continued the process and built up more and more complex and also more labile organic colloids, until finally these acquired the property of transforming light energy into chemical energy.

In the discussion which followed, Sir Oliver Lodge agreed that new possibilities entered matter with the increase of size and complexity of the molecule. A molecule sufficiently complex and sufficiently unstable and supplied with energy by the sunlight apparently gave the chemical substratum for the operations of life. It was potential living matter. This has not been made yet, but he has not much doubt that it might be done. To produce potential living matter, however, was not to produce life. He regarded life as of a higher order, for he did not consider the universe limited entirely to what we know. Professor Armstrong said that as a chemist he was not for a moment prepared to accept Schäfer's contention that it was probable that we should ever be able to produce life. This would mean a series of operations so infinitely complex that it was not within our power to pronounce any opinion on its possibility. The dominant word in Moore's paper was the word "colloid." It was a blessed word among the physiologists at the present day, but like so many blessed words was used for wrapping up ignorance. Professor Hartog said that there was a tremendous amount of scientific "bluff" in the assertion that there was a consensus of opinion among biologists that life was only one form of chemical and physical action which could be produced in the laboratory. The greatest biologists held aloof from such dogmatism.

SLEEPING-SICKNESS

Prof. E. A. Minchin discussed the prevention of sleeping-sickness. He said that it had recently been found that the trypanosomes of sleeping-sickness (*Trypanosoma gambiense* and *T. rhodesiense*) could live in various species of antelopes, to which they appeared to be quite innocuous. Thus the wild game constituted a "reservoir" from which the parasite could be brought by the fly to man. It was therefore proposed to exterminate the wild game. It was doubtful whether this would produce the desired effect, for not only antelopes but also ruminants, including domestic stock, could harbor the parasite. He was more hopeful of measures for destroying the fly, the greatest enemies of which were gallinaceous birds, such as the common fowl and the wild guinea-fowl. These birds scratched up the ground and destroyed the pupae of the fly. Probably the reduction of tsetse-flies could be effected by protecting the wild gallinaceous birds and by introducing foreign species, such as the Indian jungle fowl, and by encouraging the natives to keep domestic fowls around the villages.

MENTAL EVOLUTION

Dr. Harry Campbell read a paper on "The Factors Which Have Determined Man's Evolution from the Ape," which he said was essentially a mental evolution. In order that an advance in intelligence might enhance the chance of survival, it must be of practical use. Only a being possessing prehensile hands could evolve into man; an oyster endowed with the mind of a Newton would in no way be benefited in the struggle for existence. It was abandonment of arboreal for terrestrial life, in the search after animal food, which determined man's evolution from the ape. While the carnivora were perfect butchering machines, endowed with instinct for scenting and stalking prey, and tooth and claw for seizing and killing, the prehuman ape lacked these but was gifted with hands and no small degree of intelligence. He had to rely on these in hunting. Intelligence thus began to count in the life struggle, and mental evolution was correspondingly accelerated. The first employment of crude weapons by the few created a new standard of mental fitness. Regarding man's ultimate psychic destiny, he considered that intellectual evolution had ceased, not because it had reached its possible limit, but because supernormal intelligence no longer enhanced the chance of survival. On the other hand, moral evolution was proceeding by the survival of a superior moral type. In short, man was tending to become better but not cleverer.

PARIS LETTER

(*From Our Regular Correspondent*)

PARIS, Sept. 19, 1913.

Scheme for the Enlargement of the Naval Medical School

The new military law, which increases our military forces in general, is to prolong the course of the Ecole du service de santé de la marine et des colonies, situated at Bordeaux, from three to four years. The number of students, which is at present 178, will soon be about 300 and the buildings of the school are to be correspondingly enlarged.

Educational Hygiene: Associations of Neat Children

To encourage families in making sure that children who attend school are neat, a medical inspector of the department of the Seine, Dr. Dinet, has founded in every class an "association of neat children." On the list of members, a sort of roll of honor, are the children who have their hair perfectly neat, their faces, necks and hands carefully washed each day, clothing clean and well kept, shoes well polished, nails unbitten, etc. They are kept up to the mark by frequent examinations between the visits of the medical inspector, and encouraged by annual honorable mention and distribution of prizes to those who deserve them.

Death of Professor Poncet

Dr. Antonin Poncet, professor of clinical surgery at the Faculté de médecine de Lyon, has just died suddenly, aged 67. He published many works, especially on diseases of the bones and human actinomycosis. In his later years he applied himself to the demonstration of the preponderant rôle of tuberculosis intoxication in the etiology of certain forms of fibrous rheumatism. He read a paper at the International Congress on Tuberculosis, held in Washington in 1908, on tuberculous rheumatism and inflammatory tuberculosis (THE JOURNAL, Nov. 28, 1908, p. 1897), and later published in collaboration with Dr. Leriche two monographs on the same subject. He was also interested in historic research and published curious studies on the disease of Napoleon, on Richelieu and on Jean-Jacques Rousseau. June 24, 1894, he was called on to treat President Carnot, who had been wounded by Caserio. With the assistance of Professor Ollier, Poncet operated and some days later published in the *Semaine médicale* an article on the subject.

The Twenty-Fifth Anniversary of the Pasteur Institute

On the twenty-fifth anniversary of the foundation of the Institut Pasteur, a law was passed authorizing exceptional

promotion in the Legion of Honor for the principal collaborators of this establishment. Owing to the renown of Pasteur's studies of rabies, an international subscription opened by the Académie des Sciences de Paris soon amounted to $500,000 (2,500,000 francs), and permitted the foundation, Nov. 18, 1888, of the Institut Pasteur. It was too small almost as soon as it was built, so numerous were the workers who congregated there from all parts of the world. Following a paper by Dr. Roux in the Budapest congress in 1894 on the treatment of diphtheria, a new subscription opened by the *Figaro* brought in about $200,000 (1,000,000 francs). It was used in arranging in the estate of Garches, lent by the government, great stables where it was possible to immunize a large number of horses to furnish antidiphtheria serum. The success of serotherapy drew to the Institut Pasteur new donations which were counted by millions and which permitted the acquisition in Paris itself, between the rue Dutot and the rue de Vaugirard of more than 14 hectares (about 34 acres) for the building of a hospital of 100 beds and of an institute of chemical biology facing the old laboratories of physiology and pathology. It is interesting to know that among the gifts the largest and most numerous were from Jews. The most important bequest in 1907 was from the banker and philanthropist, Osiris, which amounted to over $4,000,000 (20,000,000 francs). As M. Daniel Berthelot, professor in the Faculté des Sciences de Paris, recently observed, the gifts which have permitted the foundation and the development of the Institut Pasteur are comparable with those in which the New World takes pride. The character of the gifts, however, is different. In the United States such gifts are bestowed almost indifferently on pure science and humanitarian objects. Among us the enthusiasm which causes the gift of millions for a library or observatory is not so readily excited. At present the Institut Pasteur is a center at once of scientific research, of higher instruction and of therapeutic treatment. It is divided into three principal sections, a microbiologic section, a serotherapeutic section, and a section of biologic chemistry. One of the sources of superiority of the Institut Pasteur consists in its independence. It was founded and is carried on without official superintendence and hence has a spirit of initiative and of adaptiveness which administrative oversight scarcely permits to our government establishments.

The Mortality from Syphilis

At one of the recent sessions of the Société française de dermatologie et de syphiligraphie, Dr. Leredde read a paper intended to prove that in a great city like Paris, after tuberculosis, syphilis is the most frequent cause of death, exceeding cancer. In 1910, for example, 11,000 deaths, in round numbers, were due to tuberculosis and 2,500 to cancer. According to the researches of Leredde, at least 3,000 deaths are due to diseases caused by syphilis. Official statistics, however, attribute to syphilis only a small number of the deaths which are really caused by it. "The language of statistics," says Leredde, "like the language of medicine, is still an anatomoclinical language at many points; that is, it is incomplete. When statistics attribute a death to round ulcer, angina, softening of the brain, or spinal diseases, it may be due to syphilis that the physician has neglected to investigate or to mention. Reckoning up the deaths due to the diseases of the nervous system, circulatory system, etc., Leredde concludes that out of 10,821 deaths in 1910, syphilis was responsible for 3,374, or a little more than 31 per cent.; and even at that he has not reckoned non-tuberculous diseases of the larynx, diseases of the lungs, of the pancreas, of the spleen and of the thyroid; diabetes, which is sometimes of syphilitic origin; gastric ulcer, of which syphilis is perhaps often the cause; icterus gravis, and especially the diseases comprised under the headings "congenital debility, icterus and scleroma of the new-born," which caused 1,268 deaths in 1910.

Dr. A. Renault made several apparently well-grounded objections, remarking that one must not fall into the error humorously touched on by Ricord, who said that, according to the way things were going, internal pathology would soon become an annex to syphilis. While there is no question of the diagnostic value of the Wassermann reaction, it should be remembered that this reaction has not always the significance accorded to it with regard to visceral lesions. "Post hoc, ergo propter hoc" is not always correct, and the existence of syphilis does not justify the assertion of the syphilitic nature of a concurrent disease. The statistics of the tertiary stage show that in most cases syphilis is not the terrible disease that Leredde would make it. Out of 2,396 cases, Professor Fournier has observed only 3 per cent. of tertiary complications in patients who have taken treatment for at least three years. Professor Jadassohn of Berne, who is carrying on similar researches on prostitutes, has come to similar conclusions. He found only 4.6 per cent. of tertiary complications among those who had been regularly treated, and every one knows how poorly these women observe the laws of hygiene. Recent statistics of W. Perls are still more conclusive. From a study of the cases of syphilis treated at the Breslau clinic from 1901 to 1907 he found that out of 6,203 syphilities only 1.0 per cent. had tertiary manifestations. In view of the enormous number of syphilitics in the world, it is not surprising that a positive Wassermann reaction is so often encountered, but the presence of a positive Wassermann does not justify the assertion that the visceral lesion from which the patient suffers is syphilitic. The deviation of complement indicates that the subject is tainted with syphilis and that is all. This taint by no means excludes the possibility of other diseases.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 12, 1913.

Personal

A few weeks ago Professor von Behring met with a serious accident. He slipped and sustained a fracture of the neck of the femur; this was complicated by a gastric fever so that he was seriously ill for some weeks. At the present time he is under treatment with an extension apparatus and consequently must keep his bed for a number of weeks longer. On this account, he is prevented from delivering an address on his new remedy at the Vienna Scientific Assembly.

The Rudolf Virchow Building of the Berlin Medical Society

As I stated some time ago, the projected building of the Rudolf-Virchow-Haus by the Berlin Medical Society has been markedly advanced by the aid of the Berlin municipal authorities. The committee in the city council has approved the suggestion of the city government on the matter, and it is to be expected that the council as a whole will pass the motion. The building is to have three assembly rooms for demonstrations, a Virchow museum and a library calculated to contain 200,000 volumes, together with a reading-room.

The Purchase of Mesothorium

The favorable results which have been obtained with mesothorium radiations in carcinoma by the gynecologist Bumm, Krönig and others have excited great attention in our newspapers and partly under the pressure of public opinion and partly instigated by the wishes of the directors of the hospitals, the municipal authorities in a number of cities, as I have already mentioned, have determined to purchase some mesothorium and radium. Berlin has appropriated $50,000 (200,000 marks) for this purpose, and $200,000 (800,000 marks) have been appropriated for the same purpose by the Prussian Department of Education. It is to be hoped that further success will justify this not inconsiderable material sacrifice.

Regulation of the Working Conditions of Nurses

Complaint has been repeatedly made in the newspapers and general congresses that the pay of nurses is insufficient and particularly that the hours of work are too long. These grievances are encountered not only in hospital service but also in private nursing. As these complaints must be regarded as justified from the viewpoint of physicians, our government has taken the matter up and a collective inquiry with regard to the special conditions in the German Empire has been instituted by the Imperial Department of the Interior. At the same time, measures are being tried which have for their purpose the regulation of the working conditions of nurses. As soon as the investigations are concluded, a general regulation with reference to the beginning and ending of the day and night service will be adopted by the Bundesrat.

Comparative Health Statistics of the Berlin and Paris Garrisons

The superiority of the hygienic conditions of the German Army to those of the French appears again in a report which has recently been published in a French professional journal by a French investigator. Especially, there is an instructive comparison between the health of the Berlin and Paris garrisons. During a recent five-year interval there were 17,500 cases of illness in the Berlin garrison with an average strength of about 66,000 men. On the other hand, in the Paris gar-

rison with a strength of about 45,000 men there were 37,000 cases of illness. In Berlin there were 182 deaths or 0.54 per cent.; in Paris, 516 or 2.3 per cent. A large part of the morbidity in the Paris garrison was due to measles and tuberculosis. The inferior condition of the Parisian garrison is to be attributed to insufficient hygienic measures, of which not the least is the circumstance that the barracks occupied by the garrison are nearly all antiquated buildings.

Housing of Berlin Salespersons

As is the annual custom, the local Krankenkasse of merchants' clerks has again published an extensive report of the housing conditions of the sick policy-holders. In spite of various improvements, the same unfavorable conditions in general were found as in previous years. The dwellings of 13,903 members of the society who were unable to work were investigated during the year. Of these patients, 7,052 live in front houses, 6,851 in rear houses. Of 803 patients who live in rooms having up to 10 square meters of floor space (about 100 square feet), 225 share this space with another person, 106 with two persons, 23 with three, 2 with four and 1 with seven. Over 3,730 patients live in rooms the height of which was not up to the minimum of 2.8 meters (about 9 feet). In 4,777 dwelling-rooms, the air space was not 20 cubic meters per person (about 20 cubic yards). There were 1,524 rooms which had less than 10 cubic meters of air space; this is less than the minimum requirements of the first Prussian housing law. The inspectors found 174 persons who have only 5 cubic meters of air space at their disposal. Moreover, 65 rooms had no windows and 671 patients shared their living-room with five other persons, 348 with six and 297 with more persons.

Among the lodgers, about 14 per cent. were pulmonary invalids and about 7 per cent. suffered from acute infectious disease, which indicates the marked danger of infection from night lodgers. Fully 1,717 patients lived in one-room dwellings (kitchen or sitting-room). Altogether 213 men and 236 women were found who had to share their sleeping-rooms with five and more persons, although they were ill. Of the patients living in families, 344 and of those living in sleeping rooms or furnished rooms, 87 occupied rooms with no provision for heat. In regard to sanitary conditions, 634 had to use a water-closet in common with 16 and more persons. A third of those in the front tenements and more than half of those in the rear tenements had to leave the apartment if they wished to use the closet.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 10, 1913.

Cholera in Austria

In the frontier provinces of the empire sporadic cases of cholera were reported during the first half of this year, but since the war is over and the soldiers are dismissed the disease has been spread over the countries engaged in war and also has been transmitted to us. In Hungary 167 cases have been reported up to the present, while in Austria only forty-nine cases have been discovered. But there is no doubt that we are only at the onset of the attack, and that preventive measures will have to be most stringently used to check its progress. Even in Vienna two cases were found though they have so far remained the only ones.

Medical Subjects in the Meeting of Statisticians

The month of September is really the month of congresses and meetings of societies for Vienna. No less than four take place here this year: the statistical, the pharmaceutical, the congress on first aid, and the congress of German practitioners and scientists. Only the first need be mentioned here. There were some points brought out through papers read in this congress which every medical man should keep in mind. Thus one report dealt with the fertility of marriages in Belgium and France. In all European countries the number of births has gone down rapidly within the last twenty years. This holds good not only of legitimate but also of illegitimate children. Interesting data were brought forth to show that within the first six years of matrimony more wives die than husbands, while after this period more husbands die than wives. No doubt the risks of the first childbirths are responsible for this fact. The average duration of matrimony is twenty-nine and one-third years. Another paper (by Tschuprow of Russia) dealt with the diminishing surplus of boys in the number of legitimate births. In the European countries, all show this tendency. Tschuprow believes that the increase of miscarriages, which is well marked within the last two decades, is responsible for it, for the male embryo is more prone to miscarriage than the female. The statistics for Germany show the same conditions. It was decided to ask the sick clubs and other friendly societies to pay more attention to these occurrences in their statistical reports.

A Pharmaceutical Exhibition

An interesting exhibition is now on view in Vienna which comprises all objects pertaining to pharmacy and apothecaries. Apart from the purely scientific exhibits, those dealing with the history of medicine are most instructive. Two collections illustrative of ancient and medieval chemistry and pharmacy were exhibited which show distinctly the progress made in this line within the last half century. Apart from the more than doubtful composition and origin of the majority of the remedies used in those times, the use of drugs half a century ago was attended with a low degree of scientific certainty. A distinct feature of the exhibition is the prominence which is given to the "spas" and health resorts. Hydrotherapeutic and balneotherapeutic measures are indispensable in modern times, and they can thus be easily studied in a variety of applications and activities. A large space is allotted to the radioactive substances which have lately come into so marked a prominence. It is interesting to note, as hitherto, that Austria is still the chief producer of radium (mostly from the pitchblende of Joachimsthal) while the chief buyers are in the United States. A most instructive addition to the exhibits are tables which show the money value of the trades involved in the pharmaceutical business as well as the cost of certain drugs in retail and wholesale quantities. Especially in Austria and Germany, where prescriptions may be made out by apothecaries only, the price of simple mixtures or powders is often in comparison with their cost ridiculously high. This is due to the intricacies of the official price-list which is made out every few years by the government. The friendly societies and sick clubs have appointed a special officer whose duty it is to control the methods of prescription used by the club doctors, and a synopsis of economical prescriptions is issued to the medical officers of the Krankenkassen.

Marriages

WILLIAM D. HAMMOND, M.D., Hagerstown, Md., to Miss Camille Bringhurst of University City, St. Louis, at Alton, Ill., September 16.

LAWRENCE JACOBS QUILLIN, M.D., Streator, Ill., to Miss Ethel Shrimplin of Mount Ayr, Ia., at Warsaw, Ind., September 15.

MARVIN MCRAE SCARBROUGH, M.D., New Haven, Conn., to Miss Mabel Gertrude Sherwood of Bridgeport, Conn., September 6.

GEORGE BALL ROWELL, M.D., San Bernardino, Cal., to Mrs. Louise Schwarz of Los Angeles, at Riverside, Cal., September 13.

PETER PRENTISS CAUSEY, M.D., Wilmington, N. C., to Miss Esther Elizabeth Brewington of Baltimore, September 17.

WALTER A. DEW, M.D., Belleville, Ill., to Miss Mary Wise of Granite City, Ill., at Edwardsville, Ill., September 18.

SAMUEL KENNEDY CHRISTY, M.D., Willshire, O., to Mrs. Elpha Miller of Pleasant Mills, Ind., September 10.

HEILMAN CURTIS WADSWORTH, M.D., Washington, Ind., to Miss Elizabeth M. Beale of Chicago, September 11.

FRANKLIN W. CREGOR, M.D., Indianapolis, Ind., to Miss Gertrude Horn of Valparaiso, Ind., September 24.

EUGENE JULIUS HAMBORSZKY, M.D., Farrell, Pa., to Miss Clara McEllafflin of Lancaster, Pa., September 16.

WILLIAM DAVIS PHILLIPS, M.D., New Orleans, La., to Miss Mary G. Scott of Lexington, Mass., September 9.

JAN JAROSLAV CEPELKA, M.D., to Miss Frances Pacak, both of Chicago, at Crown Point, Ind., September 18.

ALLEN HENRY DUNTON, M.D., Cincinnati, O., to Miss Ava A. Ripley of Minneapolis, Minn., August 28.

GEORGE IVES, M.D., St. Louis, to Miss Loretta Trentle of West Virginia, at St. Louis, August 18.

AHAB HAINES LIPPINCOTT, M.D., to Miss Miriam Lee Early, both of Camden, N. J., September 8.

CHARLES M. RICKERT, M.D., to Miss Sarah Enterline, both of Millersburg, Pa., September 10.

EDWARD LYMAN CORNELL, M.D., to Miss Mabelle Jane Cass, both of Chicago, September 16.

JOHN A. BROPHY, M.D., to Miss Caroline M. School, both of Philadelphia, September 17.

Deaths

Ephraim Wood Norwood, M.D. Harvard Medical School, 1882; a fellow of the American Medical Association; councilor of the Massachusetts Medical Society; president of the Worcester District Medical Society, and medical examiner of the Ninth District of Worcester County; for many years a member of the school board of Spencer, Mass., and president of the board of trustees of the Hitchcock Free Academy, Brimfield, of which he was principal from 1869 to 1879; died at his home in Spencer, September 11, from heart disease, aged 67.

Robert S. Wallace, M.D. Jefferson Medical College, 1855; a fellow of the American Medical Association; the oldest surgeon in the employ of the Pennsylvania System; also surgeon at East Brady for the Allegheny Valley Railroad; who was given a complimentary banquet by the medical fraternity of three counties in 1907, at which he was presented with a loving cup and was declared to be "the most eminent country doctor in the state;" died at his home in East Brady, September 14, aged 81.

Hugh Sumner Wyman, M.D. Michigan College of Medicine, Detroit, 1882; formerly a member of the American Medical Association; a member of the Washington State Medical Association; for more than a quarter of a century a practitioner of Alaska and Washington and for several years in charge of the United States Marine Hospital at the Treadwell mines, Alaska; died at his home in Olympia, Wash., September 12, aged 54.

Letcher W. Smith, M.D. College of Physicians and Surgeons, Dallas, Texas, 1906; a member of the State Medical Association of Texas; formerly a practitioner and a member of the board of education and local surgeon for the Texas and New Orleans Railroad at Sacul; was found dead in his room in a hotel in Houston, Texas, September 10, from acute dilatation of the heart following typhoid fever, aged 31.

James Frederick Berlet, M.D. Jefferson Medical College, 1877; formerly a member of the American Medical Association; resident physician at the German Hospital and visiting physician to the Foster Home, Philadelphia; at one time a surgeon in the Army; died at his home in Philadelphia, September 14, after an operation for gangrenous diverticulitis, aged 62.

Garland Payne Moore, M.D. College of Physicians and Surgeons, Baltimore, 1886; acting assistant surgeon U. S. P. H. S.; a member of the Medical Society of Virginia; whose last station was at Kobe, Japan, where he was on duty at the American Consulate; died suddenly at sea September 9, while en route to the United States, aged 49.

Henry Franklin Broyles, M.D. Tulane University, New Orleans, 1889; of Greenwood Springs, Miss.; for twenty years a member of the House of Representatives from Monroe County and at the time of his death state senator; was shot and killed in an encounter in which he killed his assailant with an ax, September 16, aged 48.

William Maurice Moore, M.D. University of Missouri, Columbia, 1880; Bellevue Hospital Medical College, 1881; a member of the State Medical Association of Texas; of Paris, Texas; a specialist on diseases of the eye, ear, nose and throat; died at a hospital in Paris, September 9, after a surgical operation, aged 54.

Adolph Hochstein, M.D. Graduate of the Friedrich Wilhelm University, Berlin, in 1870 (license, Michigan, 1900); a fellow of the American Medical Association and for thirty-seven years a practitioner of Kalamazoo; died at his home in that city, September 12, from disease of the stomach, aged 68.

M. Wendell Case, M.D., University of Louisville, Ky., 1851; of Philadelphia; who became a musician after a few years of medical practice and was at one time president of the National Conservatory of Music; died at his home in Philadelphia, September 10, from arteriosclerosis, aged 83.

Calvin Huntley Fitch, M.D. Cincinnati College of Medicine and Surgery, 1878; for several years physician for the Chesapeake and Ohio Railway during the construction period in Virginia; died at the home of his son-in-law in Augusta, Me., August 21, from cerebral hemorrhage, aged 84.

S. T. Davidson, M.D. University of Pennsylvania, Philadelphia, 1854; a Confederate veteran and practitioner of Charlotte Road, Nashville, Tenn., for more than half a century; died in St. Thomas' Hospital, Nashville, August 29, from senile debility, aged 81.

John Archibald McDonell, M.D. University of Buffalo, New York, 1875; a member of the Illinois State Medical Society; professor of surgery in Bennett College of Eclectic Medicine and Surgery, Chicago; died at his home in that city, September 19, aged 66.

Jacob Lorenzo Smith, M.D. Western Reserve University, Cleveland, 1873; a member of the Mississippi State Medical Society and for many years a practitioner of Durand, Miss.; died at the Pontiac State Hospital, September 13, aged 70.

Samuel C. Dunkle, M.D. Kentucky School of Medicine, Louisville, 1881; a member of the Ohio State Medical Association and a resident of Glidden; died in Rochester, Minn., September 11, three weeks after a surgical operation, aged 66.

John D. Armfield (license, Indiana, 1897); a practitioner of Indiana since 1865; one of the organizers of the Elwood State Bank and a member of the board of education; died at his home, September 10, from senile debility, aged 74.

George S. Guernsey, M.D. Vermont Medical College, Woodstock, 1851; a pioneer practitioner of Keosauqua, Iowa, but for five years a resident of Los Angeles; died at the home of his daughter in that city, August 13, aged 91.

Zophar Case, M.D. Washington University, St. Louis, 1875; a fellow of the American Medical Association; for forty years a practitioner of Johnson County, Mo.; died at his home in Warrensburg, September 14, aged 66.

William Worth Bailey, M.D. University of Michigan, Ann Arbor, 1861; a pioneer practitioner of Arkansas; surgeon of volunteers during the Civil War; died at his home in Fort Smith, September 15, aged 72.

John Brainard Carman, M.D. McGill University, Montreal, 1879; a fellow of the American Medical Association; died at his home in Detroit, Minn., about September 13, from staphylococcic bacteriemia, aged 58.

Evan F. Cowger, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880; a veteran of the Civil War and for forty years a practitioner of Riverton, Iowa; died at his home, September 4, aged 70.

Hugh Lee Courtright, M.D. St. Louis College of Physicians and Surgeons, 1909; formerly of Kellerville, Ill.; died at the home of his mother in Des Moines, Iowa, September 15, from tuberculosis, aged 28.

Alfred S. Bellamy, M.D. Hahnemann Medical College, Chicago, 1876; founder and president of the Florence (Ala.) Wagon Works; died at his home in that city, August 5, from cerebral hemorrhage.

John Sherer Bardwell (license, Pennsylvania, 1881, as graduate of the American Health College, Cincinnati); for fifty-six years a practitioner of Ridgway; died at his home, September 8, aged 79.

George R. Bartran, M.D. Chicago Medical College, 1872; for thirty-four years a resident of Algoma, Wis.; died at his old home in Smithboro, N. Y., August 27, aged 72.

Amandus N. Fegley, M.D. Jefferson Medical College, 1870; died at his home in Oley, Pa., September 4, from gangrene following an infected wound of the foot, aged 70.

James Edward Cage, M.D. University of Nashville, Tenn., 1868; a Confederate veteran; died at his home in Carmel, Tenn., September 14, from uremia, aged 76.

Nathan Herman, M.D. Louisville (Ky.) Medical College, 1894; died at his home in that city, September 13, from acute gastritis, aged 50.

Thomas B. Lloyd, M.D. Missouri Medical College, St. Louis, 1868; died at his home in Paris, Mo., August 6, from senile debility, aged 73.

Samuel Henderson, M.D. Jefferson Medical College, 1873; died at his home at Franklin, Tenn., August 15, from angina pectoris, aged 62.

Charles H. Eckert, M.D. Fort Wayne (Ind.) College of Medicine, 1889; died in his apartments in Marion, Ind., August 21, aged about 55.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SWINDLING WOMEN

Some Female Weakness Cures and Allied Frauds

A series of scholarly articles on quackery and the nostrum evil appeared in *Vanity Fair* two or three years ago by Mr. Henry Sewill. The author devoted one article to "Quackery for Women" whose opening paragraph ran thus: "Among the victims to quackery of every sort women far outnumber men. They are always more trustful, and, as a rule, find it more difficult, especially when suffering, to believe that anyone can be base enough to abuse their confidence, much less to take advantage of their helplessness in order to plunder and injure them."

The paragraphs which follow were written to complete a pamphlet entitled "Viavi, 'Female-Weakness' Cures and Allied Frauds"[1] which has been prepared especially for the enlightenment of women on the subjects with which it deals. The matter is reproduced here because of many inquiries THE JOURNAL receives from physicians regarding concerns of this sort indicates a demand for information.

Mrs. Ida M. Ade

The Kokomo Medicine Company, of Kokomo, Ind., advertises a "free home treatment for female trouble" under the name of Mrs. Ida M. Ade. Those who write to Mrs. Ade for the treatment get a form letter printed in imitation handwriting. Mrs. Ade recommends the recipient of her letter to order a 30-day "Vitopian Home Treatment," put up by the Kokomo Medicine Company. By the same mail, a stock letter and a small box containing a few pills and two vaginal suppositories comes from the Kokomo Medicine Company. The letter gives the price of the 30-day treatment as $3.50, but states that, on Mrs. Ade's urging, they "have decided to allow you the regular wholesale discount," which will bring the price down to $3. The whole scheme is a typical mail-order medical fraud.

Alpen Seal

Mrs. Georgia Palmer, of Chicago, advertises that she will send a "free prescription" for the relief of women's ailments. Those who write receive a letter printed in imitation handwriting. The "prescription" is printed in imitation typewriting on a prescription blank of George E. Flood, M.D., 79 Dearborn Street, Chicago. The "prescription" contains three items: Water, Fluid Extract of Black Haw and "Alpen Seal." The joker, of course, lies in the "Alpen Seal," which is a "patent medicine" put on the market by a concern calling itself the Alpen Chemical Company. Dr. George E. Flood of 79 Dearborn Street may also be found in nostrum literature as the writer of a testimonial for a fake bust developer put out by the Aurum Medicine Company, also of 79 Dearborn Street. "Alpen Seal" is also advertised by the "prescription fake" method in those newspapers that are not above sharing the profits of frauds of this type.

Atlanta Remedy Company

The Atlanta Remedy Company of Atlanta, Ga., is another branch of the W. M. Griffin fakery with headquarters at Fort Wayne, Ind. (See the article on Bertha C. Day.[2] Dr. Lily M. Norrell is the stool-pigeon in this case. The methods employed are practically identical with those used in the Bertha C. Day concern: the regular system of follow-up letters, "free proof treatment," testimonials and a 144-page booklet, entitled "Health at Home for Women." This booklet is said to be "published by the Atlanta Remedy Company, Atlanta, Ga." Except for the first eight pages, which describe Dr. Lily M. Norrell, "Medical Director, Atlanta Remedy Co.," the book is printed from the same plates as, and is identical with, the one issued by the "Woman's Remedy Company," San Francisco, another of Griffin's fraudulent mail-order medical concerns. As in the case of the Bertha C. Day concern, those who write to the Atlanta Remedy Company for the free trial treatment also have saddled on them a so-called "special treatment," which is sent at the same time as the trial treatment. For the latter, the victim is asked to pay $2 or $2.50. The value of this treatment may be gathered from the fact that if the victim refuses to accept it, the company does not consider it worth while sending the three cents postage necessary for its return. The business is essentially as fraudulent as that of its prototype, the Bertha C. Day Company.

Mrs. F. Beard Company

The Mrs. F. Beard Company, of Dayton, O., advertises in the classified columns of the newspapers, thus:

"Ladies—Send 25 cents; catalogue Secrets for Women and box Dr. Baird's remedy. Safe, speedy, regular."

Those who send 25 cents receive a batch of advertising of the remedies of the F. Beard Company, and a small wooden box containing some black pills. The label on the box refers the recipient to a red circular sent in the letter. This circular urges the woman to "send immediately for Superb Pills No. 3," if the sample in the wooden box "does not bring about the monthly flow." According to the leaflet, "Superb Pills No. 3 are a new departure, being made triple strength." They are "made expressly for long-standing and aggravated cases." If taken each month "ladies will find themselves always regular," thus "saving them from worry" and pain. And the reader is told that "these pills should be used every month as a preventive of irregularities." Five dollars a box is asked for this unmitigated fraud. In addition to the nostrums, the company also sells various "rubber goods."

Dr. Charlotte Christopher

Dr. Charlotte Christopher operates—or did operate—a mail-order medical concern at 7 E. Randolph Street, Chicago. "This famous lady specialist" has "time after time taken cases pronounced hopelessly incurable by the medical profession and restored the patients to health in a most phenomenal manner"—she says so, herself. Dr. Christopher also said, in an advertisement published in a Chicago paper in 1910, that "after years of successful practice," she "decided to devote her future time to the relief of suffering women." Dr. Charlotte Christopher graduated from a low-grade Chicago medical college in 1907, so that the "years of successful practice" dwindle down to a paltry three—and these, evidently, were not "successful" or she would not be in the fraudulent mail-order medical business. Dr. Christopher, like most mail-order medical fakers, offers to send a free treatment to those answering her advertisement. Those who send for it receive a small box containing three different kinds of tablets: "Tonic," "Newlife," and "Healthtone." They also receive a request to send five dollars for the "full two months' treatment." The usual follow-up letters come to those who do not bite; she has a sliding scale of prices common to charlatans of this sort. Later follow-up letters indicate that Dr. Charlotte Christopher's business was succeeded to by the Newlife and Healthtone Co., Chicago, which, in turn, is said to be owned by the Panter Remedy Co., which operates a mail-order cure for syphilis ("blood poison").

Hager Medical Company

The Hager Medical Company, South Bend, Ind., is said to be owned by George L. Hager, who is president of the company, with A. M. Hager, treasurer, and J. L. Midgley, secretary. "Oak Balm" seems to be the most extensively exploited of the Hager concern's frauds, although it also puts out other products including "Fibroma Unguent," which the company advertises, by inference, as a cancer cure.

1. This pamphlet sells for 6 cents.
2. The exposé of the Dr. Bertha C. Day Company appeared first in THE JOURNAL, April 1, 1911; it has been reprinted in pamphlet form (price 4 cents) and also appears in full with later notes, in "Nostrums and Quackery."

Margaret M. Livingston

Margaret M. Livingston, M.D., of Chicago, advertises in the "personal" columns of newspapers as a "specialist for diseases of women." Those who write for the "free booklet" which she offers to send, receive, in addition to the pamphlet lauding Dr. Livingston and her methods, some printed slips describing various nostrums she has for sale. Two or three years ago Dr. Livingston seems to have been connected with a concern called the Central Health Institute which sold "For-Me-Ka Oil, Vitality Tonic Remedies." The incorporators of the Central Health Institute were, in addition to Dr. Livingston, Edith B. Lowry, O. A. Livingston and R. J. Lambert. The Chicago papers of November 21, 1912, reported the arrest of a number of persons throughout the country on the charge of misuse of the mails to solicit criminal medical practice or to dispose of medicines and instruments connected with such practice. Dr. Margaret Livingston's name was one of the twelve listed of those arrested in Chicago.

Orange Blossom Suppositories

Orange Blossom Suppositories are put on the market by J. A. McGill, M.D., Chicago. Since the Food and Drugs Act went into effect, the "Orange Blossom" part of the advertising has been less pronounced; also, many of the most evident falsehoods have been toned down, although there are still plenty. A product answering to this description was subjected to analysis by the chemists of the British Medical Association. They reported that "Orange Blossom Specific for Uterine Diseases," claimed to be "the invention of a Chicago doctor," had for its principal constituents alum and boric acid, the base being principally soft paraffin. Orange Blossom Suppositories are said to be "a noble remedy" for "cancers in their earlier stages." Incidentally, McGill puts out a "Famous Cancer Salve" and also a "kidney and bladder cure" which "never fails to cure any form of Bright's disease, diabetes," and various other conditions. Each is a fraud.

Phen-ix Chemical Company

The Phen-ix Chemical Company of Warsaw, Ind., sells "Anti-seps—a modern female remedy," "Stargrass Compound—Nature's tonic for women," "Phen-is-ine Nerve Vitalizers" and "Earl's Kidney and Bladder Pills." The concern advertises in the classified columns of newspapers and by means of display advertisements. The claims are fraudulent.

Harriet M. Richards

Mrs. Harriet M. Richards is the name under which the Woman's Mutual Benefit Company of Joliet, Ill., reaches its dupes. The advertisements of this concern are familiar to those who glance through the pages of some of the cheaper weekly magazines. "Mrs. Richards" offers to send her "sister woman" a "fifty-cent box of Balm of Figs Compound" which "will not cost her one cent." The woman who writes for the "free treatment" receives a small cardboard box containing two vaginal suppositories and a stock letter urging her to use them. With the letter is the usual "scare" booklet describing the dire effects of the various sexual ailments to which women are subject and telling of the wonderful cures that "Balm of Figs" has effected in all diseases of this sort. A day or two after receiving the "free trial treatment," another stock letter comes and with it a "regular-size" box of Balm of Figs suppositories, for which two dollars is asked. This box costs two cents to mail and, so far as we know, the company never sends those who refuse to accept it the two cents necessary for its return. The value of the contents is evident.

A cursory examination of Balm of Figs was made in the Association's laboratory and the results indicated that the nostrum is a mixture of borax, alum and linseed oil made into a paste. If the recipient does not send the two dollars, she receives at intervals "follow-up" letters of the usual type. As an additional inducement she is told that if the two dollars is sent "one of our splendid fountain syringes" will be sent free. The concern also handles other "patent medicines" and, as a side-line, "sanitary belts," and "skirt supporters." While the Harriet Richards concern professes to keep "all correspondence of whatever nature" confidential and private, as a matter of fact thousands of letters that have been written to the concern are on sale at letter brokers. The thing is an unmitigated fraud.

Sanova Company

Sanova is said to be a "famous specific" for "female weakness" and is put up in the form of vaginal suppositories. Under the caption "Why Men Desert Their Wives," the Sanova Company, Toledo, O., urges women to use their nostrum and thus "command the happiness and pleasures which all women are intended to enjoy." The concern sends out booklets of the "scare" type; it also sells other "patent medicines" as well as a "Ladies' Syringe." Works the "free-trial treatment" dodge.

Dr. Southington Remedy Company

The Dr. Southington Remedy Company of Kansas City, Mo., publishes in such newspapers as will accept them advertisements to this effect:

"Ladies—$1,000 reward. I positively guarantee my great successful 'monthly' remedy. Safely relieves some of the longest, most obstinate abnormal cases in three to five days."

Those who write for information regarding this advertised abortifacient are sent a stock letter and a booklet telling of the wonderful results of taking "Dr. Southington's Ergo-Kolo Female Compound for Women Only." The price of this "regulating compound" is $1.50 a package "single strength," but the "double strength," which is recommended "for more obstinate cases," costs two dollars. The thing is an indecent fraud.

Mrs. M. Summers

Almost every one who has looked over cheap magazines and not-too-particular newspapers has seen the "Free to You—My Sister" advertisements put out under the name of Mrs M. Summers, South Bend, Ind. Mrs. M. Summers is the name under which Vanderhoof & Company exploit a fraudulent mail-order "female-weakness cure." Like Mrs. Harriet M. Richards, Mrs. Summers offers to send a "free trial" of her "home treatment." Those who write for the "free treatment" receive some "Opaline Suppositories" for vaginal use. Since the Food and Drugs Act ("pure food law") has been in effect, the Vanderhoof concern has had to declare the presence of opium in its suppositories, each suppository containing 1⅔ grains of this drug. With the suppositories, "Mrs. Summers" sends a sample of her "Compound Antiseptic Powder for Ladies." This antiseptic powder is for the "cure," among other things, of "suppressed menstruation." From the testimonials regarding this powder we take the following, alleged to have been sent in by a married woman:

"I had not been unwell for four months before commencing your treatment, and after using it two weeks, I came around all right and have been regular ever since. . ."

Also, Vanderhoof & Co. sell "Vigor of Life." This is said to be a marvelous cure for women who have lost the "personal magnetism" and other "attractive attributes" that go with a "thoroughly developed and strong nervous organism." It is also good, we are told, "for women whose nervous organism peculiar to the sex has never fully developed." "Vigor of Life supplies that which is" necessary to "make the marital relations harmonious and complete." Furthermore, this wonderful product "prevents the insidious approach of failing manhood"—all this for one dollar a box. These and many other fakes emanate from the Vanderhoof fraud factory.

Incidentally, "Mrs. Summers' Harmless Headache Powder" has been declared misbranded under the Federal Food and Drugs Act ("pure food law"). Instead of being harmless, the United States authorities declared that it was "in truth and in fact injurious to health." A plea of guilty was entered and a fine imposed.

The Woman's Remedy Company

Dr. Grace Feder Thompson, "Specialist to Women, Medical Director," is the stool-pigeon in charge of the Woman's Remedy Company, San Francisco. This is another of the W. M. Griffin frauds, similar in scope to that of his older fraud, Bertha C. Day. The method of operation seems to be identical with that of the Atlanta Remedy Company and the booklet it sends out is, with the exception of the first few pages, printed from the same plates. The booklet in this case is entitled "Woman's Home Health Book," said to be "published by the Woman's Remedy Company, San Francisco, California." The Woman's Remedy Company sends to those who write for the "free-trial treatment" a "full and complete course," for which three dollars is asked. Those who do not swallow this bait receive a series of follow-up letters, each one more insistent than its predecessor, urging that the money be sent. If these, too, are unanswered, the concern comes down in price, but does not send the three cents necessary for the return of the three-dollar treatment.

Vis-Vitæ Medicine Company

The Vis-Vitae Medicine Company of Toledo, Ohio, sends a "free trial treatment" consisting of tablets for vaginal use. Uses the follow-up system in keeping after its victim. It is a somewhat paltry and insignificant swindle.

THE NEW ORLEANS "ITEM"

This Paper Makes New Rules for the Acceptance of Medical Advertising

The New Orleans *Item* put into effect October 1 a new set of rules governing the acceptance of advertising, with particular reference to medical "copy." The matter is commented on editorially in this issue. Here are the rules:

The New Orleans *Item* declines to accept advertising on any of the following class of articles or services:

1. Books, pictures, "rubber goods," or other devices or services, where the name of the device or the wording of the copy conveys, either directly or inferentially, that the article or service is of obscene, illegitimate, or questionable nature.

2. Medicines or methods for the cure or relief of diseases peculiar to women. This rule bars any copy containing such words or expressions as "women's diseases," "women's complaints," "ladies' friend," "tansy," "pennyroyal," "regulator," "preventive," and the like, and in general any verbiage that may be considered by the *Item* to be similarly offensive.

3. Medicines, methods, or devices for the cure or relief of diseases peculiar to men. This rule bars any copy whatever containing any such words or suggesting any such ideas as "lost manhood," "sexual weakness," "exhaustion," "impotence," "nocturnal emissions," "unnatural discharges," "gonorrhea," "impure blood," "syphilis," "gleet," "varicocele," and the like, or any copy that suggests them.

4. Medicines or mechanical devices that purport to "enlarge the bust," to "improve the figure," to make the fat thinner or the thin fatter, to restore hair to bald heads, change ugly complexions into beautiful ones, and, in general, to perform any other feats that are impossible or may be dangerous. It is not intended to bar toilet preparations of harmless composition, or legitimate massage devices that are truthfully advertised.

5. Any medicine that claims to cure or relieve diseases commonly held by medical science to be incurable in this way, such as tuberculosis, cancer and the like. This rule bars reference to such diseases by expressions designed to suggest them, such for instance, as "lung trouble" for consumption. This rule also bars indirect claims of cure or relief of such conditions, through testimonials or otherwise.

6. Any medicine that claims to cure or relieve any disease or injury whatever. This refers to *diseases*, not to *conditions*, such as constipation and the like, and does not bar harmless cathartics and other such remedies, when truthfully advertised.

7. Any medical treatment offered free.

8. Any advertisement not falling itself within the prohibition of these rules but leading to correspondence between advertiser and reader in which the principle of these rules is violated.

9. Any medicine containing a habit-forming drug of the dangerous class — opium or its alkaloids, cocain, heroin, chloral and the like. This rule bars preparations in which alcohol is present in quantities larger than pharmaceutical compounding requires and thus becomes one of the active agents, or the sole active agent, in the mixture. This clause, however, will not apply to "bitters" commonly known for their alcoholic content.

10. Medicine containing useful drugs or chemicals harmless in many cases, but potentially dangerous when indiscriminately administered — acetanilid and the like. Debatable cases of this sort will be settled in the discretion of the *Item*.

11. Any sort of text or illustration offensive to good taste, either in character or in appearance. This applies to all the class of grotesque, bizarre, or horrible pictures and expressions calculated to shock the reader into attention.

12. Copy that simulates in type, arrangement or otherwise, the *Item's* own reading matter.

13. Financial or commercial schemes or enterprises that the *Item* has reason to believe are fraudulent, or unsound, or exaggerated.

Correspondence

Serodiagnosis of Pregnancy

To the Editor:—The main difficulty so far in the serodiagnosis of pregnancy has been the danger of bacterial contamination. I have had no trouble since using the following precautions: 1. The prepared placenta is kept in distilled water containing a few drops of chloroform and a layer of toluol. Just before use a small piece of placenta is removed and boiled in a small quantity of distilled water. This insures sterility and also removes any chloroform present.

2. When ready the dialyzers are lowered into ordinary hydrometer jars without lips. After toluol has been added to the dialyze and the water, the jar is tightly corked. There is almost no evaporation.

3. Immediately after use the thimbles are thoroughly washed in running tap-water and drained by inverting them on a sheet of filter-paper. Just before use they are again washed and boiled in distilled water for three minutes.

S. L. CHERRY, M.D., Clarksburg, W. Va.

[COMMENT.—The importance of such careful, aseptic technic has been emphasized repeatedly by Abderhalden and his pupils. We have commented on this subject previously. (The Present Status of Abderhalden's Serodiagnosis, editorial, THE JOURNAL, Aug. 16, 1913.)—Ed.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CARUNCULAE MYRTIFORMES

To the Editor:—In THE JOURNAL, Aug. 30, 1913, p. 704, answering "Subscriber," you say: "The carunculae myrtiformes are the results of labor and not of the rupture of the hymen." Who told you so? Gray, Cunningham, Dorland's dictionary, McClellan's "Regional Anatomy" all say that the remains of the ruptured hymen are called "carunculae myrtiformes." Gerrish and Morris say practically the same, and none of them say that the carunculae are the result of labor. C. W. COURTRIGHT, Chicago, Ill.

ANSWER.—"The hymen is usually torn at the first coitus, sometimes by gynecologic examinations or by masturbation. It is partially destroyed in labor, the remnants persisting as isolated protuberances around the vaginal orifice—the carunculae myrtiformes." Hirst: "Obstetrics," Ed. 7, p. 43, 1912,

"As a result of the distention incident to the birth of the child, the hymen undergoes pressure necrosis in various places and after the puerperium the remnants are represented by a number of cicatricial nodules of varying size—the carunculae myrtiformes. Practically speaking they are infallible signs of previous child-bearing, though occasionally they may follow the marked distention and long-continued pressure incident to the removal of large tumors through the vagina." Williams: "Obstetrics," Ed. 3, 1912, p. 33.

"Usually the hymen is more or less lacerated at the first coitus. Almost without exception it is obliterated at parturi-

tion. Thereafter nothing remains of it but fleshy tags attached about the entrance to the vagina. These are called carunculae myrtiformes. From a medicolegal point of view the absence of a hymen furnishes *prima facie* evidence only of sexual indulgence . . . On the other hand carunculae myrtiformes are undeniable evidence of a former parturition." Jewett: "Practice of Obstetrics," Ed. 2, p. 23.

Other authors could be quoted, including writers of books on legal medicine, toxicology, etc.

SHOULD THE OCULIST DISPENSE HIS OWN GLASSES?

To the Editor:—In this community it has become quite an issue to decide whether or not the oculist should dispense his own glasses. In this large city, with probably twenty opticians, only one of this number has a mechanical knowledge of the proper adjustment of frames. What we desire of the opticians is that they be able to adjust frames properly, but they do not seem to realize the importance of this.

Are the opticians the friends of the oculist or are we sending our prescriptions into the hands of the enemy? Do they find fault with the prescriptions? Do they at times alter them and have our patients call on them when changes in lenses are needed?

It is a fact that in many communities the oculist receives a percentage on his eye-glass prescriptions; others own their own stone, etc. The country practitioners desire a knowledge of frame-fitting. They are compelled to sell the glasses. Most postgraduate schools are not prepared to teach adjustment. Why not? I would like your opinion on this subject. OCULIST, New Orleans.

ANSWER.—In the following reply the term "oculist" is used for "ophthalmologist," "ophthalmic surgeon," "physician," "doctor," etc.

This is a question that cannot be positively answered "yes" or "no," in the sense that one would be altogether right and the other entirely wrong. A number of considerations must be taken into account which have an important bearing on the question.

The oculist at present as a rule has had little or no practical instruction in the field of mechanical optics. He generally has a greater or less knowledge of physiologic optics, but even possessing an acquaintance with the mechanical part of the fitting of glasses, he would not have the time—unless his practice was very limited—to do this work properly, together with his other duties. The optician in his field is a specialist just as much as the oculist, and the work of each should be in the best interests of all concerned, entirely distinct and separate; but this is a world of compromise, and it happens that in this matter, as in most things, we are often obliged to do not what is evidently the best, but the next best; consequently in this matter of optician and oculist various compromises are adopted.

The size of the population is an important consideration. Many of the smaller cities have no competent opticians, as they could not make a living. In such cases the oculist is obliged to dispense his own glasses. Hence he should have a fair knowledge of mechanical optics and the adjustment of glasses, and should see that the lenses are properly centered, the interpupillary distance absolutely correct both for distance and near, the angle of the "bridge" correct, etc. In other words, he must do the principal part of the optician's work, and for this he is entitled to compensation additional to his regular fee for professional services. The optician who fills his prescription, perhaps in a city some distance away, may rightly allow the oculist a certain discount on the catalogue prices of his materials, which is entirely different from offering him a commission for business sent him.

On the other hand, in larger cities, in which there are generally many opticians, competition and rivalry are naturally keen. The oculist who fits his own glasses selects the optician of his choice, who in turn regards the oculist as a wholesale customer and charges the wholesale rate for his goods. The patient has no more reason to expect to get glasses at wholesale rates than he has to get his food or clothing in this way. When the oculist sends a patient away with a prescription for glasses, he must remember that his full duty to the patient and to himself has not been discharged. The patient must be requested to return to the office with the glasses so that the oculist may see for himself that the prescription has been accurately filled. This should be an invariable rule with every oculist. If the glasses are incorrect in any way, either through incompetence or from intentional alteration of the prescription, it would justify the oculist in warning his patient against the optician responsible for the error.

The best plan of all and one that would give patient, oculist and optician the greatest satisfaction, where the amount of refraction work is large enough, is for the oculist to employ his own optician as a part of his office force, and when glasses are prescribed to transfer the prescription directly to the latter. In this way the patient is not allowed to leave with the glasses until they have been thoroughly tested by both the optician and the oculist. This plan has been successfully adopted by a number of the leading oculists of the country.

In regard to the teaching of mechanical optics, it is extremely doubtful if, in the already crowded curriculum of the regular four-year course, such a branch could be added. In fact, it would be impracticable and undesirable. In postgraduate courses, however, it could and should be introduced. It would undoubtedly be a popular course, as there are always young oculists preparing themselves to settle in small communities in which refraction work will constitute the largest part of their practice and where, willy nilly, they will be obliged to dispense their own glasses. To do this intelligently, they must first have competent instruction to do the proper work of the optician. If such a course as this were introduced, it would, before long, do much toward eliminating many of the "refractionists" and "optometrists" whose knowledge is limited exclusively to the simple mechanism of refraction, but who are absolutely ignorant of the physiologic conditions or the possibilities of pathologic changes of importance. In other words, it would mitigate the present evil of oculists trying to be opticians and of opticians posing as oculists.

IS THE JOURNAL'S ADVERTISING POLICY CONSISTENT?

To the Editor:—In the Queries and Minor Notes department for Sept. 20, 1913, is an article on "another consumption vaccine." I see in the advertising section an advertisement for Dr. Sherman's vaccine and book. Now I have been tempted to send for this book because it was advertised in THE JOURNAL, but if he is exploiting a questionable cure for tuberculosis, may not his book be lacking in authority? Kindly state if you think it good.

M. M. S., Tacoma, Washington.

To the Editor:—In THE JOURNAL, Sept. 20, 1913, appears the enclosed advertisement; on page 979 of the same issue you have a scathing criticism of Sherman's consumption vaccine. Does this seem consistent? I am sorry to say that through this advertisement in a previous number of THE JOURNAL I was led to buy "Vaccine Therapy in General Practice" by Sherman. I would not buy it again should I be deprived of this copy, nor would I recommend it to others. Further comment unnecessary.

C. G. MENNINGER, M.D., Topeka, Kansas.

ANSWER.—Dr. Menninger's enclosure is an advertisement that THE JOURNAL has carried of the book "Vaccine Therapy in General Practice," by Sherman—the same Sherman that puts out the "Non-Virulent Tubercle Bacillus Vaccine," criticized recently. Dr. Sherman's book deals very optimistically with the subject it covers. With much of the matter it contains THE JOURNAL disagrees; much, however, is based on fairly well-substantiated scientific evidence. So far as the Sherman products themselves are concerned, some THE JOURNAL considers unscientific and open to serious criticism; others have been passed on and accepted by the Council on Pharmacy and Chemistry. Such of the Sherman products as are open to criticism, THE JOURNAL will criticize when it seems necessary; such of the Sherman products as are acceptable to inclusion in New and Nonofficial Remedies should be acceptable to THE JOURNAL'S advertising pages. We see nothing inconsistent in this. The censorship of advertising is a complex problem; how complex, only those know who are brought face to face with it daily. That, in meeting this problem, THE JOURNAL never publishes advertisements that can justly be criticized is not claimed. Being human, those who manage THE JOURNAL are just as subject to error as the other fellow. It is believed, however, that there are few, if any, publications that exercise as great care in the acceptance of advertising as does THE JOURNAL of the American Medical Association.

VERMUTH

To the Editor:—What is Vermuth? I found in a German encyclopedia that it was a decoction of *Absinthia artemesia* [*Artemisia absinthium*] or wormwood in a wine. If this is true the public at large should know it. It is used in most "cocktails." If this is true it should also be kept out of the country as is absinthe.

FRANK A. GLASGOW, M.D., St. Louis.

ANSWER.—Most of the Vermuth, we are told, is obtained by macerating a mixture of herbs, among them wormwood, for a short time with an ordinary cheap Italian wine. The product so obtained, we understand, is fortified with alcohol so as to produce a product containing from 15 to 17 per cent.

of alcohol, this being practically the alcoholic strength of port wine or sherry wine. The following statement in reference to French Vermuth is taken from the *Proceedings of the American Pharmaceutical Association*, 1900, p. 448:

> "Vermuth"—Composition and Preparation.—According to a U. S. Consular Report (1899, 60 (227), 599), the production of "Vermuth" in France is almost entirely confined to Marseilles. The ingredients employed in making an extract, which, when added to wine, forms the "Vermuth," are exemplified in the following formula: alcohol, 90 per cent., 8 liters; coriander seed, 800 gm.; Greek nuts, Peruvian bark, and sweet flag, each, 200 gm.; wormwood, sharp, and Roman wormwood, each, 720 gm.; sweet marjoram and yarrow, each, 180 gm.; rose leaves, clover and Ceylon cinnamon, each, 100 gm.; dittany and angelica seed, each, 50 gm.; hyssop, 150 gm. These are digested for eight days at 120 F., then warmed moderately over a slow fire for twelve hours, the solids removed by expression, and the liquid filtered. The extract so obtained is added to wine as desired, the alcoholic strength of the "Vermuth" so produced being from 15 to 17 per cent.

The amount of wormwood contained in these preparations is probably very slight. The ruling prohibiting the importation of absinthe has not been applied to Vermuth, probably because there is not sufficient wormwood present.

WRIGHT'S STAIN—KUHNE'S ANTIRHEUMATIC REMEDY

To the Editor:—1. Kindly give me the best method in detail to make a differential stain of blood-smears with Wright's stain.

2. Can you tell me what Kuhne's antirheumatic remedy contains? It is made in Chicago.

H. J. FRIESEN, M.D., Gretna, Manitoba.

ANSWER.—1. This subject was fully considered in an article by Wright, THE JOURNAL, Dec. 3, 1910, p. 1979. Specimen smears should be fixed before using Wright's stain. The best method of fixation is the hot copper plate introduced by Ehrlich. This method is described in any of the books on diagnostic methods. For ordinary use, Engel and Cabot, in the absence of other equipment, recommend passing the smear through the flame of a Bunsen burner several times. This often yields excellent results, but is somewhat uncertain. The technic is as follows: Cover the film with a definite quantity of the staining fluid by means of a medicine-dropper. After one minute add to the staining fluid on the film an equal amount of distilled water, so that the surface assumes a metallic luster. Allow this mixture to remain for two or three minutes. Wash the preparation in water until the thinner portions become yellow or pink in color. Just when to stop washing must be determined to a great extent by the experience of the worker. When the desired amount of differentiation is reached, dry the specimen between filter-papers and mount.

2. Kuhne's rheumatic remedy has not been examined by our laboratories. From the type of advertising matter issued by this company, the product would appear to be fraudulent.

DUPUYTREN'S CONTRACTION

To the Editor:—A case for diagnosis: A man, aged 55, American, married, barber, says he has never had any sickness to amount to anything, has not missed a Saturday in all the years he has followed his trade and still enjoys good health. Several years ago he bruised or sprained the flexor tendon of the third finger of his right hand. A gradual contraction of the tendon in the palm ensued which has progressed until now the first joint is bent at right angles and cannot be extended, although flexion beyond that point is possible. Since that injury and without any knowledge of injury to the other hand, similar contractures have begun in the palmar portions of the flexor tendons of the left second, third and fourth fingers. Hard, smooth nodules are palpable along these tendons as far as the wrist, and the skin over these nodules seems to be adherent to the tendons. Occasionally he has attacks of aching pain in the hands which will awaken him at night. What is it?

X. Y. Z.

ANSWER.—This case is undoubtedly one of Dupuytren's contraction. The contracture and the nodules mentioned are not in the tendons, but in the palmar fascia.

EMBOLISM AS CAUSE OF DEATH

To the Editor:—Can you furnish me with any reprints or information on sudden death following a compound fracture of both bones of the leg, probably due to embolism?

A. E. DALE, Danville, Ill.

ANSWER.—In 1884 Fourney and von Recklinghausen first noted fat embolism as a cause of death by plugging the pulmonary capillaries. Free fat can frequently be found in the urine during the first two or three days after fracture. It is reasonable to suppose that it comes from the lacerated bone-marrow entering the circulation either directly through the torn surface or by way of the lymphatics. The symptomatology is not at all clear. On necropsy, edema of the lungs and extensive plugging of the pulmonary capillaries with free fat are found. Symptoms usually begin within twenty-four hours after the injury; rarely after two or three days.

It is the opinion of Brouardel, author of one of the very few books on the causes of sudden death, that these fat emboli are often produced by putrefaction due to micro-organisms. The larger books on surgery, particularly Stimson's "Fractures and Dislocations," give complete discussions of this subject.

REFERENCES TO FATALITIES FROM EXCESS OF ATHLETICS

To the Editor:—Please give me information concerning fatalities caused from excess of athletics.

J. L. FIELDS, M.D., Elora, Tenn.

ANSWER.—The following is a list of references on the general subject. Some of the articles may refer to fatalities:

Athletics and Health, editorial, THE JOURNAL, Feb. 8, 1913, p. 446.
Bavarian Research on Effects of Athletics, THE JOURNAL, March 22, 1913, p. 917.
College Athletics in After Life, THE JOURNAL, Jan. 25, 1913, p. 300.
A Further Report on Athletics and Health in the Navy, editorial, THE JOURNAL, Jan. 11, 1913, p. 131.
Effects of Strenuous Athletics in the Navy, THE JOURNAL, Jan. 6, 1912, p. 40.
Friedman, H. M.: Muscular Development, the Causes for the Lack of It, and the Value of Physical Exercise, THE JOURNAL, March 9, 1912, p. 685.
Jundell, I.: Prognosis of Chronic Overexertion of Heart in Athletics, *Nord. Med. Ark.*, 1913, xlv, Med. Sec. No. 3; abstr., THE JOURNAL, June 7, 1913, p. 184.
Torgersen, P.: Competitive Athletics and the Physician's Responsibility, *Norsk Mag. f. Laegervidensk*, January, 1913.
Grober, J. A.: The Heart and Competitive Athletics, *Med. Klin.*, Jan. 19, 1913.
Henschen, S. E.: Athletics and Dilatation of the Heart, *Nord. Med. Ark.*, 1913, xlv, Med. Sec. 2.
Coughlin, R. E.: Deaths of Athletes and Fatalities in Athletic Games During 1910, *New York State Jour. Med.*, August, 1910.

LITERATURE ON OCCUPATIONS AND REEDUCATION OF THE INSANE

To the Editor:—Please give references to literature on occupations and reeducation of the insane.

READER.

ANSWER.—The following may be referred to:

Zeller, G. A.: More Work and Recreation for the Chronic Insane, *Kansas City Med. Index-Lancet*, October, 1910.
Cohn, E.: Systematic Occupation and Entertainment of the Insane in Public Institutions, THE JOURNAL, April 18, 1908, p. 1249.
Barrus, Clara: Nursing the Insane, Macmillan Co., New York, 1908. (This book has a chapter on the occupation and amusement of patients.)
Havilard, C. F.: Occupation for the Insane, *Am. Jour. Insanity*, January, 1913; abstr., THE JOURNAL, Feb. 15, 1913, p. 551.
Ricksher, C.: Occupation in Treatment of Insane, *Illinois Med. Jour.*, April, 1913.
Wiest, Anna: Beschäftigungsbuch für Kranke und Rekonvalescenten, published by Enke, price, 5 marks.

URIC ACID

To the Editor:—Please name the diseases in which uric acid plays a definite rôle.

H. J. LEHNHOFF, M.D., Lincoln, Neb.

ANSWER.—Uric acid is generally held to have some relation to the pathogenesis of gout. Urates are deposited about the joints in this disease, and in the early part of a gouty attack the excretion of the urates into the urine is less than the average. At a later stage a larger quantity than normal is generally excreted. It is not settled, however, that uric acid plays an etiologic rôle in the case of gout. No definite relation of uric acid to other diseases has been established.

LEAD-POISONING

To the Editor:—In a recent number of THE JOURNAL, Sept. 6, 1913, p. 773, reference is made to an article on lead-poisoning found in Bulletin 85, Bureau of Labor, Washington, 1911. I have obtained a copy of Bulletin 85, which is, however, published in 1909, but can find no such article on lead-poisoning in it.

J. W. LUTHER, M.D., Palmerton, Pa.

ANSWER.—The reference should be to Bulletin 95 instead of 85.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 7-8. Sec., Dr. John Wix Thomas, Phoenix.

COLORADO: State Capitol, Denver, October 7. Sec., Dr. David A. Strickler, 612 Empire Building.

DISTRICT OF COLUMBIA: Washington, October 14-16. Sec., Dr. George C. Ober, 125 B St., S. E.

GEORGIA: Regular, State Capitol, Atlanta, October 14. Sec. Dr. C. T. Nolan, Marietta; Eclectic, State Capitol, Atlanta, October 14. Sec., Dr. C. W. Miller, 192 W. North Ave.

IDAHO: Boise, October 7. Sec., Dr. John F. Schmershall, Jerome.

KANSAS: National Hotel, Topeka, October 14. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 34 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

MICHIGAN: Capitol Bldg., Lansing, October 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: University of Minnesota, Minneapolis, October 7-10. Sec., Dr. Thomas S. McDavitt, 814 Lowry Building, St. Paul.

MISSISSIPPI: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

MONTANA: State Capitol, Helena, October 7. Sec., Dr. Wm. C. Riddell, Helena.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: State House, Trenton, October 21-22. Sec., Dr. H. G. Norton, 429 E. State Street.

NEW MEXICO: Santa Fe, October 13. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Muskogee, October 14. Sec., Dr. John W. Duke, Guthrie.

UTAH: Salt Lake City, October 6-7. Sec., Dr. G. F. Harding, 310 Templeton Building.

WYOMING: State House, Cheyenne, October 15. Sec., Dr. J. B. Tyrrell, Laramie.

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination, held at Ann Arbor, June 10-12, 1913. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and not less than 50 in each subject. The total number of candidates examined was 53, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surgery	(1913)	84.4, 84.2, 87
Bennett Medical College	(1913)	88.9
University of Illinois	(1913)	81.7, 83.5
Boston University	(1899) 86; (1912)	85.5
University of Michigan, Homeopathic College	(1913)	78.6, 80.3, 82.9, 83.5, 84.4, 84.4, 85.4, 85.9, 86.5, 88, 88, 90.2, 90.9.
University of Michigan, College of Medicine and Surgery	(1912)	81.9; (1913) 78.2, 79, 79.5, 80.1, 81.3, 81.4, 82.7, 83.7, 82.7, 83.8, 84.3, 84.5, 84.5, 85, 85.1, 85.2, 85.5, 86.1, 86.5, 86.8, 87, 87.2, 87.3, 87.4, 87.6, 88, 88.2, 88.7, 89.4, 89.4
McGill University, Montreal	(1913)	87.5

LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1882)	Illinois
Pulte Medical College	(1883)	New York
Woman's Medical College of Pennsylvania	(1902)	Penna.

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 15-16, 1913. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 31, of whom 28 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Medical School of Maine	(1912) 82; (1913) 81, 83, 84, 85, 89, 90, 92, 93.	
Maryland Medical College	(1912)	75, 80
Harvard Medical School	(1903) 84; (1910) 88; (1912) 84, 87, 87; (1913) 77, 83, 89.	
Boston University, School of Medicine	(1912)	76
Tufts College Medical School	(1913)	80, 84, 86, 90
College of P. and S., Boston	(1912) 82; (1913)	82
Columbia University Coll. of Phys. and Surg.	(1913)	82
Laval University, Quebec	(1913)	75

FAILED	Year Grad.	Per Cent.
Maryland Medical College	(1910)	73
College of Physicians and Surgeons, Boston	(1910)	66
Laval University, Quebec	(1903)	78*

LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1906)	Utah
Johns Hopkins University	(1897)	Dist. Colum.
Harvard Medical School	(1898)	Dist. Colum.
University of Vermont	(1912)	Vermont

* Fell below 60 per cent. in physiology.

Alabama July Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 8-11, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 90, of whom 45 passed and 45 failed. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Birmingham Medical College	(1912) 75, 75, 77; (1913) 75, 76, 77, 77, 79, 80, 80, 81, 81, 82.	
University of Alabama	(1911) 76; (1913) 75, 76, 77, 78, 78, 79, 80, 80, 80, 90.	
Howard University, Washington, D. C.	(1913)	76.
Atlanta College of Physicians and Surgeons	(1913)	78, 79.
Northwestern University	(1902)	84.
Chicago College of Medicine and Surgery	(1913)	75, 78, 80.
University of Kansas	(1907)	82.
Tulane University	(1912) 89; (1913)	81, 81, 84.
University of Maryland	(1913)	83.
Baltimore Medical College	(1913)	85.
Jefferson Medical College	(1912) 75; (1913)	75.
Meharry Medical College	(1913)	76, 81.
Vanderbilt University	(1906)	89.
Memphis Hospital Medical College	(1911)	77.
University College of Medicine, Richmond	(1908)	77.

FAILED	Year Grad.	Per Cent.
Birmingham Medical College	(1908) 70; (1912) 70, 73; (1913) 43, 55, 56, 64, 64, 64, 64, 67, 69, 69, 69, 73.	
University of Alabama	(1912) 67, 69; (1913)	73.
Howard University, D. C.	(1905)	72.
Georgia College of Eclectic Med. and Surg.	(1913)	32.
Atlanta College of Phys. and Surg.	(1913)	44, 66, 71, 73, 73, 73.
Southern College of Med. and Surg.	(1912) 59; (1913)	66.
Atlanta School of Medicine	(1910) 57; (1912)	53, 71.
Chicago College of Medicine and Surgery	(1913)	69, 70.
Tulane University	(1910)	73.
Leonard Medical School	(1910)	36.
Memphis Hospital Medical College	(1912) 55, 66, 66; (1913)	45, 47, 70.
University of Tennessee	(1912) 62, 73; (1913)	60.
University of the South	(1907)	60.

The following questions were asked:

ANATOMY

1. How are cervical, thoracic and lumbar vertebrae distinguished? Give the characteristics of the seventh cervical vertebra. 2. To what class of joints does the elbow belong? What bones enter into its formation and name three of its ligaments. 3. Name the muscles of the anterior tibial region, and describe the tibialis anticus. 4. Describe a nerve fiber. 5. Give the origin and course of the musculospiral nerve. 6. Describe briefly the structure of arteries and veins. 7. Name the branches of the external carotid artery. Give the origin, course and distribution of the lingual artery. 8. Give in a general way the flow of blood through the systemic veins. 9. Name the terminal lymphatic vessels, and locate and describe the receptaculum chyli. 10. Give the structure of the stomach.

PHYSIOLOGY

1. Discuss at length the means and methods employed by the human organism in protecting itself against infectious diseases. 2. What phenomena follow injury to and section of the pneumogastric nerve? 3. Discuss the function of the mucosa of the respiratory tract. 4. Discuss the distribution and function of the cerebrospinal fluid. 5. Discuss aphasia. 6. Discuss hunger and thirst. 7. How is the automatic action of the heart muscle supposed to be maintained. 8. Discuss the absorption of ingested fats. 9. What general conditions influence blood-pressure and blood-velocity? 10. Discuss the origin and significance of urea.

CHEMISTRY

1. Define "chemical change" and "physical change." 2. Name, describe, and give source of two elements used in their elementary forms in medicine. 3. Describe hydrogen, how does it occur and how may it be prepared? 4. Describe carbon dioxid, give formula and state what relation it bears to the respiratory changes. 5. What is phenol, give properties and source. 6. In what tissue is iron an important constituent, and how is it combined therein? 7. Define "proteid" and name three proteids found in the human body. 8. Describe the method for the quantitative determination of urea. 9. How may occult blood be detected in the feces? 10. What are ptomains and how may they be introduced into the body?

HYGIENE AND MEDICAL JURISPRUDENCE

1. Define hygiene. 2. What is immunity and how developed? What is susceptibility? 3. Give the differential diagnosis between scarlet fever and measles. 4. What effect does excessive exercise have on the heart? What effect does insufficient exercise have on the heart? 5. What is the difference between parasites and saprophytes? 6. If on examination colon bacilli are found to be present in the general water-supply of a community, what fact does it establish? What steps, if any, should be taken to protect the community? 7. Give the prophylaxis of uncinariasis. 8. What are the methods of self-purification of large bodies of water? 9. What are the symptoms of acute poisoning from bichlorid of mercury and the antidote? 10. Found, the dead body of a new-born infant. How can it be positively determined that the child was born alive?

SURGERY

1. Give the cardinal rules for treatment of wounds. 2. Give the treatment of shock and the precautions that may be taken for its prevention. 3. Name the different forms of peripheral aneurysms and give treatment for different varieties. 4. Name the varieties of fistula in ano and give treatment for same. 5. Describe the treatment of a compound fracture of the femur. 6. Give the diagnosis and tell how to reduce a backward dislocation of the head of the femur. 7. Give diagnosis and treatment of empyema, or pus in the pleural cavity. 8. Give symptoms and treatment of gall-stones. 9. Give diagnosis and treatment of perforation of the intestine in typhoid fever. 10. Give symptoms of suppurative pyelitis.

OBSTETRICS

1. What changes take place in the circulatory apparatus of the fetus after birth? 2. What conditions may be mistaken for pregnancy? 3. How would you diagnose the death of the fetus in utero? 4. What are the results of retroflexion of the gravid uterus with incarceration? 5. What are the premonitory symptoms of eclampsia? 6. What precaution should be taken in the management of face presentations? 7. What precautions should be taken against septic infection during labor and in the puerperal state? 8. Describe the internal method of performing podalic version and what are the dangers to the fetus? 9. (a) Give the diagnostic points of value in breech presentation prior to rupture of the membranes. (b) Name and describe positions of breech presentation. 10. Describe briefly the operation of cesarean section.

GYNECOLOGY

1. Give the etiology of metrorrhagia. 2. Give the effects of oophorectomy. 3. Give the names of the two most important muscles of female perineum. 4. What is meant by fibrosis of the uterus? 5. Describe the endometrium. 6. Name the conditions that cause sterility in the female. 7. What pathologic conditions are caused by posterior displacement of the uterus? 8. Classify tumors of the uterus. 9. Describe one operation for procidentia uteri. 10. Give the contra-indications for curettage.

DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. In complete ptosis how is the eye, or its appendages, affected, and why? In complete facial paralysis how is the eye, or its appendages, affected, and why? 2. Give the differential diagnosis between acute catarrhal conjunctivitis and gonorrheal ophthalmia, and the general principles of management of each. Write two prescriptions for each. 3. Explain the normal reaction of the pupil. What is the condition of the pupil in iritis, and what the remedy? What is the condition of the pupil in glaucoma, and what the remedy? 4. State some conditions that would demand enucleation of the eyeball, and describe the operation. 5. Give the symptoms of complete obstruction of the eustachian tube, of some standing, and explain briefly the measures to be employed for relief. 6. Give the symptoms, dangers and management of acute purulent otitis media. 7. How would you diagnose and manage abscess of antrum of Highmore? 8. Give the symptoms, diagnosis and management of adenoids of the pharynx. 9. A person is eating and suddenly begins to struggle for breath and turns bluish in appearance; what would you suspect, and what would you do? 10. Give some of the indications for laryngotracheotomy and describe the operation.

THE ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY AND DIAGNOSIS OF DISEASES

1. Give the etiology of mucous colitis. 2. Give the etiology of scurvy. 3. Give the pathology of endocarditis. 4. Give the pathology of abscess of liver. 5. Give the symptomatology of erysipelas. 6. Give the symptomatology of heat-stroke. 7. Give the diagnostic symptoms of pellagra. 8. Name one variety of pernicious malarial fever and give its diagnosis. 9. Give the diagnosis of diabetes mellitus. 10. Give the differential diagnosis between appendicitis and ovaritis.

PHYSICAL DIAGNOSIS

1. Name points for observation in the inspection of the thorax. 2. Name points for observation in the inspection of the abdomen. 3. Give the varieties or kinds of respiratory (breath) sounds and the explanation of each (adventitious sounds not asked for, such as râles for example). 4. Give the varieties or kinds of voice sounds and the explanation of each. 5. Give the physical signs of bronchial asthma and their explanation. 6. Give the differential physical signs between a thoroughly compensating cardiac hypertrophy caused by mitral stenosis and one caused by aortic insufficiency, and the reasons for same. 7. Give the physical signs of pericarditis with considerable effusion and their explanation. 8. Give the physical signs of arteriosclerosis. 9. Give the method for the physical examination of the spleen. 10. Give the physical signs of a bladder distended with fluid. (Optional, to be answered or not, as the applicant prefers). Make a diagnosis in the following hypothetical case: Right side: Absent movement; bulging intercostal spaces; absent fremitus lower three-fourths, increased upper fourth; flatness lower one-third; tympany middle and part of upper third, dulness remaining upper third; absent respiratory and vocal sound lower third; amphoric breathing and egophony middle and part of upper third; bronchial breathing and bronchophony remaining upper third; succussion positive. Left side: Exaggerated movement and respiratory sound and apex of heart to left of mammary line.

Book Notices

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. Cloth. Price, $6. Pp. 1074, with 157 illustrations. New York: D. Appleton & Co., 1913.

This excellent book is a distinct addition to the lengthening list of books of the first rank by American authors. Professor Rosenau's wide and varied experience and his intimate practical acquaintance with many details of public health work qualify him in a high degree for preparing a treatise on preventive medicine. The scope of the work as he has conceived it is a broad one. The book includes sections on the prevention of the communicable diseases, on immunity, heredity and eugenics, on foods, air, soil, water, sewage disposal, refuse disposal, vital statistics and industrial hygiene. Reference is made throughout to American experiences and conditions, often to the personal observations of the author, and this adapts it particularly to practical use in this country. The field covered is so extensive that the author declares "the question . . . has been rather what to leave out than what to include." Here and there irrelevant matter is allowed to usurp space needed for more vital subjects, a curious instance being the elementary physics in the paragraph on the properties of ice (page 840). The section on disinfection is especially full and authoritative, as was to be expected from the author's previous work on this subject. The section on insect-borne disease is also admirable. Very full and clear is the section on occupational disease. We do not, however, notice any reference to the recent work on the probable influence of certain occupations in causing or predisposing to cancer, as observed in the anilin workers of Basel. In the chapter on typhoid fever (page 77) the somewhat unguarded statement is made that a group of European cities with typhoid death-rates averaging 13.9 (1909) and 15.6 (1910) "would be considered low in America." As a matter of fact more than half the cities in this country with over one hundred thousand population had a typhoid rate under 13.9 in 1912. Pellagra is discussed under the head "Poisoning from Plant Foods" and, if we understand him, Professor Rosenau seems to regard the disease as undoubtedly due to the use of spoiled corn. On page 235, however, the gnat *Simulium* is pictured and is said to be "implicated in pellagra." At times the author fails to explain his meaning clearly, as when he makes the remarkable statement that "the medical sciences lost sight of heredity, owing to the ultramaterialistic view of disease which became the vogue as a result of the germ theory" (page 424). The book is marred by the frequent misspelling of proper names. A number of the illustrations are crude and some, as the picture of a laboratory hot-air sterilizer on page 981, quite unnecessary. These are obviously minor points. Taken as it stands Professor Rosenau's book becomes at once a standard authority on the subject of preventive medicine. It should find a place in the library of every worker in this field.

THE BACTERIAL DISEASES OF RESPIRATION, AND VACCINES IN THEIR TREATMENT. By R. W. Allen, M. D., B. S. Cloth. Price, $3 net. Pp. 236, with illustrations. Philadelphia: P. Blakiston's Son and Company, 1913.

The author after more than eight years of study of the bacteriology of the respiratory tract, presents in this book some interesting conclusions as the result of his experience. The findings, if correct, would establish the etiology of all common colds on a bacterial basis. He even goes so far as to attempt to differentiate from the clinical symptoms the probable class or variety chiefly responsible for bacterial affections originating in or attacking the different regions of the respiratory tract, as the nasal, nasopharyngeal or the laryngeal portions. The author is a thorough bacteriologist and seems to be conservative in his conclusions.

Interesting features of his findings are that the predominating organism in the various respiratory affections changes with time, and more recent study of the bacteriology of the upper respiratory tract reveals great differences in the find-

ings from those of five years previous. Vaccine therapy is advocated in the treatment of all of these affections and Allen reports good results in their cure and in the matter of immunization, but the fact is emphasized that all work must be controlled by the most careful bacteriologic determinations. Immunity, he says, probably depends more on the chemical composition of the tissues, as determined by metabolic processes, than is at present realized. In the discussion of vaccine and tuberculin therapy in tuberculosis, and the findings and the effect of mixed infections, the point is made that some varieties of germs complicating the tuberculous infection have an accelerating effect on the growth of the tubercle bacilli.

As seems to be too common with English medical writers, the author here has not hesitated to mention the employment of many proprietaries, some of which are downright nostrums of the patent medicine class.

OLD AGE. Its Care and Treatment in Health and Disease. By Robert Saundby, M.D., Professor of Medicine in the University of Birmingham. Cloth. Price, $2.10 net. Pp. 306. New York: Longmans, Green & Co., 1913.

Why shouldst thou die before thy time?—Eccles., viii, 17.

In this time of haste and struggle the question comes very aptly. The study of geriatrics in medicine must ultimately become a field as distinct and significant as the well-established department of pediatrics. Preventive medicine by its rapid wide-spreading growth is creating a condition whereby the individual, once reaching successfully the age of puberty, passes on with but few medical intermissions to beginning old age. The steps from adult life to normal old age are inclined to come insidiously. As the breaking up of the individual begins the physician should be able to recognize the advances distinctly normal from those characterized by symptoms of disease. In this book the author points out what may be considered as normal old age. He describes the diseases to which the aged are especially liable, considering especially etiology and prophylaxis. The contributions made recently to this growing subject are included. A special chapter is devoted to dietary and general treatment, and in six appendices are given formulas, dietaries, food analyses and a table of exercises for elderly people. The author writes in a genial, retrospective manner after an experience of forty years, and the book should make very pleasant instructive reading for the physicians' leisure hours.

DISEASE IN MILK. The Remedy Pasteurization. By Lina Gutherz Straus. Paper. Pp. 221. New York: Mrs. Nathan Straus, 27 West Seventy-Second Street, 1913.

This pamphlet constitutes a record of the philanthropic work of the late Nathan Straus in child saving, a strong argument, backed up by the record of his own work and the results of the investigations of government and other authorities, for the pasteurization of all milk used for human food, a practical guide for the establishment and conduct of sterilized milk stations, and a memorial by his widow in commemoration of his beneficences. It is intended to continue and create general interest in the work to which Mr. Straus devoted over thirty years of his life.

MINOR MALADIES AND THEIR TREATMENT. By Leonard Williams, M. D., M.R.C.P., physician to the French Hospital. Third Edition. Cloth. Price, $2.50 net. Pp. 396. New York: William Wood & Co., 1913.

This book, published first in 1906, has undergone little change except revision since that time. The indiscriminate mention of proprietaries noted at the first review is not so striking. The general arrangement of the book remains the same and the author's revisions have in general brought the subject matter well up-to-date. It is a question whether or not all the conditions treated are in reality minor maladies. The author introduces under goutiness a discussion of high blood-pressure, and includes other important subjects under some of his titles, so that the book covers a large part of internal medicine. In the study of indigestion the author confines himself to the sphere of functional diseases. Dyspepsia is divided into two forms dependent on symptoms, but both are referred to the same cause, irritation. The stomach tube does not seem to enter into his diagnostic scheme, so that his views are largely based on purely clinical data. While such a method does not indicate strictly modern ideas, it must be admitted that the study of symptoms, while very misleading at times, has much to commend it. The reader who makes due allowance for the empirical character of the work will find much profit in its perusal.

TEXT-BOOK OF DISEASES OF THE NOSE, THROAT AND EAR. For the Use of Students and General Practitioners. By Francis R. Packard, M.D., Professor of Diseases of the Nose and Throat in the Philadelphia Polyclinic Hospital and College for Graduates in Medicine. Second Edition. Cloth. Price, $3.50. Pp. 377, with 145 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This is a practical book for the general practitioner, the student or the physician seeking postgraduate instruction. The author goes to the heart of every subject, giving concise descriptions without the introduction of theoretical matters. The anatomic descriptions and those of surgical procedures are good, but the directions for medical treatment are not so happy. It would seem that much of the treatment of this sort is too stereotyped or is even archaic. Many proprietary drugs are mentioned unnecessarily and advised. It is believed that this feature of the book should be given a more modern, scientific tone. The book is well made and well illustrated. A few typographical errors are noted, and in the illustration on page 40 the inferior turbinate is labeled "superior turbinate." The section on tonsils and adenoids has been rewritten and a section on bronchoscopy and esophagoscopy has been added to this edition.

NERVOUS BREAKDOWNS AND HOW TO AVOID THEM. By Charles D. Musgrove, M.D. Cloth. Price, $1 net. Pp. 188. New York: Funk & Wagnalls Company, 1913.

On the cover of Musgrove's book some one has written, "A book of great interest and still greater importance to the general public." It is generally known that the neurasthenic delights to search through medical works for opinions as to his condition. It was to such a one that a physician once said, "Be careful, or you will die of a misprint." A considerable literature of perhaps a hundred volumes, adapted supposedly for neurasthenics, has been issued recently by various publishers. Of this type is the book by Musgrove. It is written in primer style, adapting a somewhat didactic tone, the aim being apparently to aid the man on the brink to keep from falling over. Opinions differ as to whether or not the man confronted by nervous breakdown is really helped by such literature. Of its type the book is probably better than most.

THE PRACTICE OF OBSTETRICS. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College. Fourth Edition. Cloth. Price, $6 net. Pp. 1062, with 1316 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The author endeavored in this edition to revise and rewrite the pathology and to add new material required to bring the work up to date. For the latter purpose such subjects have been added as blood-pressure, new ideas on anesthesia, vaccine and serum treatment of sepsis, hemorrhage of the newborn, later developments in pelvimetry, extra-peritoneal cesarean section, pubiotomy and Momburg belt constriction for hemorrhage. Many new illustrations have been inserted in this already abundantly illustrated book.

WAYSIDE EXPERIENCES. A Collection of Plain Tales as Heard Along the Road. By C. Elton Blanchard, M.D. Cloth. Price, $1.25 net. Pp. 246. Newark, N. J.: Physicians Drug News Company, 1913.

The author has endeavored to present the experiences and observations of his professional life in a series of sketches and stories. How successful he has been, or to what extent his conclusions are sound, will depend on the point of view of the reader.

Medicolegal

Wrongly Diagnosing Case as One of Pregnancy—Insufficient Allegations to Show Malpractice—What Not Disease

(*Merriam vs. Hamilton (Ore.), 130 Pac. R. 406*)

The Supreme Court of Oregon reverses a judgment for malpractice rendered in favor of the plaintiff and remands the cause with directions to allow a nonsuit. The court says that the plaintiff, a married woman, averred in substance that about February 6 she employed the defendant as her physician to treat her for backache, and that he entered on such service, but did not use due care in treating her for that malady, in that he diagnosed her case as one of pregnancy, and that he contended for his diagnosis until November 8, while she was not pregnant, etc. In the consideration of the plaintiff's allegations it was of no importance whether the plaintiff was pregnant or not, for either condition is normal for a married woman who has not passed her sexual climacteric, and neither one of them is a disease or a malady. Although the complaint said that the defendant failed to ascertain the plaintiff's true condition, yet no intimation was given about what that true condition was. To charge a defendant with a tort in a case of this kind, it should appear for one thing that the plaintiff's real condition was one of disease which by the exercise of the ordinary skill of his profession the defendant should have discovered, for "they that are well have no need of a physician." In other words, if the plaintiff was in a condition of health, no cause of action would arise on the mere expression of opinion or diagnosis that she was in one or the other condition of pregnancy or nonpregnancy. In this the complaint was amenable to the objection that it failed to state a cause of action. True enough, the plaintiff said that she had a backache, but pain is not a disease; it is only the symptom of some disorder of the body which in turn may not amount to disease or trauma.

The plaintiff, indeed, said that she had been rendered weak and nervous and injured in her health and constitution by reason of the alleged careless, negligent and unskilful treatment of her by the defendant. If sound health and steady nerves were absolute conditions of every human being, it would be sufficient in so many words to charge that a departure from these conditions was due to the negligence of the attending physician, within the doctrine that it is sufficient to charge in general terms that an injury was inflicted negligently. But a continuous condition of perfect health in every or any individual does not accord with human experience, and it does not necessarily follow that the ills of which the plaintiff complained were attributable to the treatment given her by the defendant merely because they occurred during his attendance. In other words, the disorders mentioned in the complaint were such as might and often do happen to any person in the absence of medical treatment, and if the plaintiff would charge these to the defendant she must show by an appropriate averment of facts, not conclusions, that those ills were really attributable to him and would not have happened but for his lack of skill.

If we turn to an analysis of the testimony, the situation was not made better for the plaintiff. It did not establish any causal connection between the defendant's treatment of her and her alleged state of health. Out of her own mouth came statements of symptoms which all the witnesses agreed were common signs of pregnancy. She avowed that she desired to give birth to a child, and that the defendant advised her to remain quiet and take no risk of bringing on a miscarriage. She menstruated at intervals during the time she was under the defendant's care. He gave her some remedies to regulate her stomach and bowels, but the principal treatment was to advise quiet and freedom from excitement. In effect they were precautionary measures designed to prevent premature parturition.

When by lapse of time it was established that pregnancy did not exist, she consulted another physician, who diagnosed her case as one of tumor and advised an immediate abdominal operation. Not satisfied with this, she consulted still another physician, who told her there was no tumor or pregnancy and advised her to eat coarse food, put on a straight-front corset, and get rid of some of the fat on her abdomen, and the ultimate event proved the accuracy of this last diagnosis. The evidence thus disclosed that her true condition was one of health and that no injury could have resulted because of the diagnosis of her case as one of pregnancy, as that is a normal condition and not one of disease. So far as the diagnosis was concerned, no injury could be attributable to it. The bodily states of which she complained could as well be attributed to the tumor diagnosis as that of pregnancy. In this connection the trial court erred in denying the defendant's request to instruct the jury that: "Where there are two or more possible causes of an injury, for one or more of which the defendant is responsible, the plaintiff, in order to recover, must show by evidence that the injury was wholly or partly the result of that cause which would render the defendant liable. If the evidence in the case leaves it just as probable that the injury was the result of one cause as much as the other, the plaintiff cannot recover."

Treating Alleged Colles' Fracture as Sprain—Relation of Diagnosis and Treatment—Consideration of Results

(*Willard vs. Norcross (Vt.), 85 Atl. R. 904*)

The Supreme Court of Vermont reverses a judgment for malpractice obtained by the plaintiff; dismissing the plaintiff's petition with costs. The court says that this was the third time this case had come to it from a jury trial. The plaintiff had a verdict and a judgment each time. But it was fair to presume that she had now made as good a showing on it as she ever could, and, in view of this and of the history of the case, the court thinks it ought to be ended here. The plaintiff had slipped and fallen forward onto her outstretched hands and hurt her wrists. She called the defendant in the opening of her case, and he testified that he had practiced his profession for more than twenty-five years; that he undertook the professional care of the plaintiff, and, after a careful and satisfactory examination, diagnosed a sprain of both wrists, but found no fracture; that in his treatment of her he used only one form of splint, namely, a pillow to support her hands and wrists, which were in no way bound to the pillow, but only rested on it. Other testimony on her part, given by two physicians, tended to show that she had at some time suffered an impacted Colles' fracture of both wrists.

On overruling a motion to remand the case, and dismissing a petition for a new trial, the court says that it must be admitted that there was evidence tending to show that the plaintiff's injuries were, in fact, fractures. The defendant treated them as sprains. Was he negligent in making his diagnosis? This was no more than asking if, in his effort to ascertain the character and extent of the injuries, he had and exercised the care and skill then had and exercised by physicians and surgeons in the examination of like cases in that locality. If this question was answered in the defendant's favor, liability could be established only by proof of negligent treatment; and, in proving this, it must be remembered that his mistake in the diagnosis was free from legal fault. In other words, treatment was to accord with the diagnosis; and, in judging it, it must be referred to the diagnosis, assuming, of course, that there was no negligence during the treatment in not discovering the true nature of the injury.

A physician is bound to give his patient a careful and thorough examination, so far as the circumstances will admit, using such care and skill and such methods of diagnosis for discovering the nature of the ailment or injury as are required by the rules of good local practice. If, in the exercise of such care and skill, either at the first examination or during the subsequent treatment, the plaintiff's fractures would have been discovered, the defendant's failure to discover them would amount to actionable negligence. The defendant's conduct in this behalf must be judged by what he saw and knew, or

ought to have seen and known, at that time, not by what may have developed or come to light since; and, if conditions were such that the nature of the injuries became a matter of judgment merely, the defendant could not be held liable, though he erred. The conduct of a physician is to be judged, not by what usually appears and can be discovered in such cases, but by what appears or can be discovered in the instant case.

Everything went to show that this was not a usual case, but an unusual one, with conditions so obscure that the defendant's failure to discover the fractures, if, indeed, any existed, was not due to professional negligence. The court does not say that such negligence could not be established by circumstantial evidence, nor that cases might not come up in which the result itself might not afford some evidence thereof; but here the result strongly made in the defendant's favor. The plaintiff's recovery was so complete, both as regards function and deformity, as to indicate very strongly that the defendant's mistaken diagnosis, if it was such, was not due to negligence. The evidence was overwhelmingly to the effect that the result was as good as could be expected by the most skilful treatment. And the radiographs before the court showed such a complete and perfect restoration of the injured wrists that any abnormal conditions still existing were so slight as to escape the untrained eye. This result, however, was not to be taken as conclusive on the question of the defendant's liability for negligent treatment. For, though the ultimate result was all that could be expected, if the defendant negligently adopted a course of treatment which resulted in greater suffering or longer disability than would otherwise have followed the injuries, he would be liable to that extent. The question of negligent treatment, as has been seen, was to be referred to the diagnosis. If this was free from negligence, and the treatment was in accord therewith, no cause of action for malpractice existed.

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
American Association of Railway Surgeons, Chicago, Oct. 15-17.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Colorado State Medical Society, Glenwood Springs, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Idaho State Medical Association, Pocatello, Oct. 9-10.
Medical Association of the Southwest, Kansas City, Mo., Oct. 7-8.
Mississippi Valley Medical Association, New Orleans, Oct. 23-25.
Nevada State Medical Association, Reno, Oct. 14-16.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Vermont State Medical Society, Burlington, Oct. 8-10.
Virginia Medical Society, Lynchburg, Oct. 21-24.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-Sixth Annual Meeting, Held at Providence, R. I., Sept. 16-18, 1913

The President, DR. MILES F. PORTER, Fort Wayne, Ind., in the chair.

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Charles N. Smith, Toledo, Ohio; vice-presidents, Dr. Hugo O. Pantzer, Indianapolis; Dr. J. H. Branham, Baltimore; secretary, Dr. E. Gustav Zinke, Cincinnati (reelected); treasurer, Dr. Herman E. Hayd, Buffalo (reelected).

Buffalo, N. Y., was selected as the place for holding the next annual meeting.

Treatment of Puerperal Streptococcemia with Intravenous Injections of Magnesium Sulphate

DR. JAMES A. HARRAR, New York: The use of magnesium sulphate intravenously for the treatment of puerperal infection was first proposed by R. R. Huggins in 1910. Later, Dr. R. W. Lobenstine tested the method at the New York Lying-In Hospital with more or less success. He effected a cure in three cases of streptococcic toxemia of the fulminating type, that is so frequently fatal, and in one case of streptococcic bacteriemia. His fifth and last case, one of streptococcic toxemia, but with negative blood cultures, resulted fatally, and rather discouraged him in the efficacy of the treatment. In continuation of this work, I have employed the salt intravenously in nine additional cases of the severer type of puerperal infection, the bacteria having been demonstrated in the blood of five.

A 2 per cent. solution of chemically pure magnesium sulphate is prepared with freshly distilled water. This is filtered and sterilized in half liter flasks in an autoclave. This solution will not hemolyze human red blood-cells, and I have found by experience that prepared in this way it will not cause any temperature reaction in the patient. Magnesium sulphate is of more value early in the course of the infection than after secondary localization has occurred. In the chronic cases of secondary thrombophlebitis or pyemia it does not appear to be of benefit. Its action seems to be chiefly on the organisms circulating in the blood. It shortens the course of the bacterial toxemias in which the bacteria cannot be demonstrated in the blood by culture, and anticipates the establishment of a bacteriemia, and finally it has reduced the mortality in puerperal bacteriemia, especially in streptococcemia, the most fatal form of puerperal infection, from 93 per cent. to 20 per cent.

DISCUSSION

DR. ROSS MCPHERSON, New York City: Only one case has come under my observation, which was not a true bacteriemia, and that case did very well.

DR. BUDD VAN SWERINGEN, Fort Wayne, Ind.: If it be true that the establishment of an abscess in the lung, as in this case the doctor recites, was responsible for the cure brought about, it bears out the contention of a man by the name of Fouchard, who wrote on the establishment of abscess in these conditions by the injection of turpentine into the tissues of the thigh or back or any available place. I imagine the good results reported by him at that time were due to a biologic process, perhaps the establishment of antibodies in this "fixation abscess" as he called it, and whatever the theory may be a number of cases of my own were treated in that way, as well as others I have knowledge of and were followed by improvement.

DR. H. WELLINGTON YATES, Detroit: The essayist attaches very little importance to the toxicity of magnesium sulphate. In the report of his cases I find that in each instance in which the magnesium sulphate is injected there followed a distinct chill with rise in temperature. Therefore, magnesium sulphate should be used with care.

Lactation Atrophy of the Uterus

DR. DOUGLAS H. STEWART, New York City: With lactation atrophy the breasts either produce too much mammary extract, and the uterus wastes away, as a fibroid sometimes will when powdered cow's udder is administered, or the secretion drains off, in the milk, some hormone which should stimulate the circulation, nutrition and growth of the uterus after the normal or physiologic atrophy of the fifth month of lactation, and the physiologic process becomes pathologic in time. In one case in my series I made the circulation right. After that lactation ceased, and growth and menstruation started at once.

DISCUSSION

DR. ROSS MCPHERSON, New York City: I have wondered whether this secretion present in the breast was not the secretion that we find in many cases of pelvic disturbance. As soon as the disturbance in the pelvis is relieved, the secretion disappears. The condition is interesting and rather unusual. I had not before seen a case of lactation atrophy that presented such symptoms.

DR. DAVID HADDEN, Oakland: In a case in which I operated two years ago there was no lactation connected with the menstruation. The woman had a baby four years before the time I saw her and had not menstruated. The uterus was retroverted, and both ovaries were prolapsed. There was a deep laceration of the cervix and an ulcer. We corrected these conditions, and two months after operation she began to menstruate and has since menstruated every month, the flow being practically normal.

DR. HUGO O. PANTZER, Indianapolis: The paper calls attention to a class of cases touched on too little in medical literature. About twenty-five years ago I confined a blonde who had all her previous life been in frail health. After being married for one year she conceived and had a child at full term. It was a forceps delivery. There were no complications incident to child-bed. The child, in contrast with the mother, thrived wonderfully and was nursed for two years. The family was very anxious to have offspring, and the woman came to me at about the third year. I found a small atrophic uterus and complete amenorrhea of some year's standing. It is fair to associate amenorrhea and atrophy of the uterus with excessive lactation. General remedies and the use of an intrauterine stem for a period of three or four months brought back menstruation, and the patient conceived again.

Treatment of Placenta Praevia by Cesarean Section

DR. ROSS MCPHERSON, New York City: Since 1891, in the service of the New York Lying-In Hospital, there have occurred 470 cases of placenta praevia, and the operation of cesarean section has been performed for this condition nineteen times by six different operators, all since 1905. The situation of the praevia was central in nine cases, marginal in five cases, and no statement as to situation was made in the history in five cases; no case with more than two fingers dilated; all had had severe hemorrhages before entrance into the hospital, and in all it was a matter of rapid delivery being considered advisable. The patients varied from para 1 to para 14; the youngest was 18 and the oldest 38. As to results, of the nineteen cases operated, one mother died, a maternal mortality of 5.3 per cent., two children were stillborn, and three died before leaving the hospital, two on the first day, and one on the ninth, a fetal mortality of five, or 26 per cent.

I believe that the indication is clear, that when we encounter a primipara with a placenta praevia either marginal or central, or a multipara, with a central placenta praevia, in either case where the cervix is rigid or undilated, whether or not there is pelvic disproportion, provided the child is viable and the mother offers the ordinary safe operative risk, cesarean section holds out a better chance of saving the lives of both mother and child with fewer complications than any other method of delivery, always provided that the operation is performed by a competent and experienced operator and amid suitable surroundings.

The Advantages of Cesarean Section Over Other Procedures in Border-Line Cases

DR. JOHN WILSON POUCHER, Poughkeepsie: In five cases of cesarean section I used the high abdominal incision, opening the uterus *in situ* as soon as it is exposed, carrying the uterine incision well over the fundus. With this incision the operation can be done through an abdominal opening about one-half the size of the lower incision, and the abdominal and uterine wounds are separated by the contraction and involution of the uterus. Another advantage is that the uterine incision is made through a part of the organ away from the larger blood-vessels, and hence there is less danger of hemorrhage, and I believe also a portion of the uterus less likely to rupture in subsequent labors. For protecting the intestines and to absorb any fluids which are likely to overflow, one or two gauze pads, six inches wide, six or eight feet long, are useful. It has been said that cesarean section has caused a considerable number of ruptured uteri. We can safely say that timely cesarean section will prevent most, if not all, ruptures.

DISCUSSION

DR. CHARLES N. SMITH, Toledo: I have done twenty-three abdominal cesarean sections. Two of these were done in the presence of placenta praevia centralis, one of them particularly for that sole indication, and the other in the presence of transverse presentation in a woman who had lost three children previously in labor and who solicited this cesarean section. The first case was a woman, 20 years of age, who was seen at St. Vincent's hospital, having had a profuse hemorrhage. She was a primipara, with a very small vagina, long, conical, rather firm cervix, with not much dilatation, and placenta praevia centralis. We did an abdominal cesarean section immediately and saved the mother and child.

The second case was a woman, 32 years of age, on whom I did a cesarean section last May. She had been confined previously at three different times, once with a transverse presentation, the others with breech presentation. In the transverse and one breech presentations the child was delivered dead. In a third breech presentation, the child lived for some few moments only. If she had a head presentation, it was thought best to deliver by forceps. If she had an irregular presentation, or if there were any complications which led us to believe she could not be safely delivered of a living child, cesarean section must be done. Arrangements were made to take her to the hospital to have this operation done. She was taken with slight pain and profuse hemorrhage in the night, and I was quickly notified and called to see her. I found her with very little pain, with dilatation of about an inch, the head in the left iliac fossa, the back and occiput anterior, and the placenta seemingly occupying the entire lower segment of the uterus. She was bleeding rather profusely, although the pains were not hard. She was taken at once to the hospital; we did a cesarean section, delivered her of a living child, and saved her life. We had in that particular case what I hold to be the proper indications for cesarean section for placenta praevia and some other indications.

DR. JAMES A. HARRAR, New York City: I have done cesarean section with perfect satisfaction in twenty-three cases, following Dr. Davis' incision

DR. H. G. PARTRIDGE, Providence: I have never seen a cesarean section done for placenta praevia. I have seen cases of placenta praevia that showed a long, rigid cervix, but these have been very few. Practically all the cases I have seen have had a soft, boggy, easily dilatable cervix, and within my own personal experience there has been no case which would have been suitable for cesarean section. Within a week we had a case in the Lying-In Hospital in Providence which would have been ideal for vaginal cesarean section. This operation was eventually done, the mother being in good condition afterward, but the baby was born dead.

DR. E. GUSTAV ZINKE, Cincinnati: There is no doubt that the majority of cases of placenta praevia can be relieved successfully, both mother and child, by the Fry method or the De Lee method, by balloon dilatation or even by metal dilatation, although I have very little use for the latter. When we are able to watch these cases and have them in surroundings that are aseptic in character, we can see what we can accomplish by way of artificial dilatation and deliver *per vias naturales*, but when we have a case of placenta praevia centralis, for instance, which is usually complicated by an oblique or transverse presentation, the tampon will do no good, and before you succeed in dilating the uterus successfully, either by the tampon, balloon, by manual or metal dilatation, the woman is usually so exsanguinated that if she does not die during the process of delivery, she will die soon after delivery, and the child, as a rule, is lost under these circumstances because it means version of the after-coming head. Besides, in primiparous women with these oblique presentations, I would not attempt anything except a cesarean section. There are cases of marginal and lateral placenta praevia in which the hemorrhage is sometimes exceedingly difficult to control, and these are the cases in which a pathological condition pertains, in which the placenta is so implanted within the uterine wall that it has taken up much of the uterine musculature. Under

normal circumstances the uterine wall is the same in every part, even under the placenta site. Ordinarily the placenta does not occupy the muscularis at all, but only the serotina. In those cases the hemorrhage is not very excessive and it can usually be controlled; but when the placental tissue and villi have buried themselves into the musculature, then we have trouble in controlling the hemorrhage, and a timely cesarean section will save both mother and child, while with the other manipulations you will probably have a fatal result so far as the child is concerned, and in many instances the mother is not saved.

No man has a right to make a cesarean section who is not thoroughly familiar with the technic of the operation. Every case of placenta praevia is a surgical one from the start and belongs to the hospital as truly as a case of appendicitis or any other surgical case, and there is no reason why these patients should not be sent to the hospital, even though the hospital may be 10, 20 or 50 miles away.

Rupture of the Symphysis Pubis in Labor

DR. HENRY ENOS TULEY, Louisville: Careful research shows that there is but one case in from 30,000 to 60,000 births, including spontaneous and traumatic varieties. While recent writers state that there are about 150 recorded cases in literature, these figures cannot be verified, and Kayser's estimate of about 130 cases, plus those since recorded, would indicate that the more correct estimate is about 140. It may be safer to state that the estimate varies from 140 to 150. It has long been the teaching that the articulations of the pelvis become softened and relaxed during gestation on account of the secretion from the synovial membrane lining their surfaces. The extent to which this softening occurs is not stated by the authors who refer to this phenomenon. I do not think it is so great as to cause difficulty in standing or walking in very many cases, at least such a condition has never been brought to my attention. The percentage of cases of rupture which are caused spontaneously varies much according to different authors.

Complications may occur in the form of rupture of the anterior vaginal wall, rupture of the bladder, severe hemorrhage from rupture of the veins about the vestibule, or suppuration of the joint or soft parts. I had one case of rupture of the symphysis pubis in labor.

Conservatism in Operations for Acute Inflammatory Pelvic Disease

DR. BUDD VAN SWERINGEN, Fort Wayne, Ind.: One should not allow a large pelvic exudate or a tubo-ovarian abscess to remain until absorbed, as it means chronic invalidism. Pus should be evacuated as soon as it is safe to do so. But when once inside the abdomen for this purpose, it is wrong to think that all pathology present must be removed with the knife. Ample provision for drainage and the ablation of the original focus will be sufficient and save many a tube and ovary, which will result in much greater peace and happiness to the patient.

Significance of Hematuria and Its Management

DR. J. GARLAND SHERRILL, Louisville: According to its causation, hematuria is classified as (1) traumatic, including accidental injury and also the minor traumatism resulting from stones. (2) Inflammatory, including acute nephritis, chronic inflammatory affections of the kidney, tuberculosis, acute and chronic inflammation of the pelvis of the kidney, ureter, bladder, prostate, and also of the urethra. (3) Vascular, blood dyscrasia, such as hemophilia, etc.; nevi, venous obstruction of the kidney; varicosity of the vesical veins, especially that due to prostatic engorgement. (4) Chemical, in which class should be placed hemorrhages from irritating drugs, as turpentine, cantharides, etc. (5) Toxic, in which the hemorrhage is the result of vascular changes occurring in severe toxemias, such as those resulting from malaria, acute yellow atrophy of the liver, yellow fever, scurvy, etc. (6) Neoplastic. (7) Parasitic. Renal hematuria is probably the form most interesting to the surgeon. Laceration of the kidney, gunshot and stab wounds, frequently cause hemorrhage which appears in the urine. Tuberculosis of the kidney presents hematuria as an early symptom, the amount of blood varying very greatly in different cases. In the treatment of hematuria, rest is of the greatest importance, and I advise the use of turpentine in small doses. Calculus, tumors, major traumatism and unilateral tuberculosis will demand operative intervention.

Acute Unilateral Hematogenous Nephritis

DR. CURTIS S. FOSTER, Pittsburgh: In the acute cases, with multiple miliary abscesses, and from which an overwhelming toxemia results, nephrectomy must be the operation of choice, if we would save the patient's life. Of the fourteen cases of this type encountered by Brewer, two were untreated, and in four nephrotomy with drainage was done. They all died. The remaining eight were treated by nephrectomy with recovery in each case. In the acute diffuse inflammation of the kidney, the treatment is not so well defined and must depend more on the course of the disease in the individual case. In those cases where the areas of infarction are very numerous, to such an extent that the function of the kidney is seriously impaired, and when the toxic symptoms are very pronounced, nephrectomy should be the operation of choice. In cases where the infarcts are few in number, the toxemia is mild, and the general condition of the patient good, splitting of the capsule with drainage of the diseased areas should be considered. Cases are on record, however, in which the symptoms have recurred after this operation and in which a subsequent nephrectomy was necessary.

The Diagnostic and Therapeutic Value of the Renal Catheter

DR. K. I. SANES, Pittsburgh: The value of the ureteral catheter in the diagnosis and treatment of urological disease is well established. It behooves us all to make use of it more frequently than it has been our custom in the past. To some of us ureteral catheterization seems a difficult procedure; to others a dangerous one. It should be neither dangerous nor difficult in the hands of men practicing the surgery that we do. Those who have catheterized many hundreds of ureters have learned not to fear infection from its use, and have gradually extended the field of its application with great satisfaction to themselves and great benefit to their patients.

Renal and Ureteral Calculi

DR. HENRY DAWSON FURNISS, New York City: Renal and ureteral calculi are more frequent than is generally supposed, and often exist, especially calculi, in the renal cortex for a long time without symptoms. The classical text-book symptomatology of calculi is oftentimes associated with other conditions of the urinary organs. The effect on the kidney of calculi is dependent on the size, shape, character, and most of all the location of the stones, those in the pelvis of the kidney and the ureter causing most damage. For those calculi that cannot be attacked from the vagina or bladder, the best procedure in stones that will be difficult to locate is the combined intra- and extra-peritoneal operation. If they can be easily found on account of their size, I would prefer the extraperitoneal route. It is not necessary to close the ureter, as it heals rapidly. A cigarette drain near the ureter had best be used for seventy-two hours, or while there is still drainage. If the stones are to be felt through the vagina, they can be removed through it; if impacted in the vesical orifice, by slitting the ureter through an operating cystoscope, or after suprapubic cystotomy, or by cautery fulguration.

Local Anesthesia in Abdominal Surgery

DR. JULIUS H. JACOBSON, Toledo: With this method of local anesthesia I have performed thirty-six operations on twenty-eight patients, eight of these being operated for double hernia. The operations were as follows: twenty-eight operations for radical cure of inguinal hernia; three operations for strangulated inguinal hernia with radical cure; one operation for radical cure of femoral hernia; two operations for strangulated femoral hernia; one operation for incarcerated umbilical hernia; one operation for incisional hernia; total number of

operations on twenty-eight patients, thirty-six. Mortality, 0 per cent.

In only two of the earlier operations was it necessary to finish the operation under a general anesthetic. This was due to inexperience with the method. The operations were uniformly painless, without nausea or vomiting, and without the slightest toxic effect from the anesthetic solution. The sensation of the operation is described by the patients as that of a pulling or tugging on the parts. In a few instances some pain was complained of when working about the hernial sac or peritoneum. This can be overcome by a separate injection of the neck of the sac early in the operation. As the adrenalin acts as a hemostatic, there is some danger of a postoperative hematoma. It is therefore, necessary to ligate all blood-vessels as soon as they are divided.

Cholangitis and Pancreatic Lymphangitis

DR. L. W. SWOPE, Pittsburgh: The clinical histories and physical signs in twenty-two cases out of a series of 2,000 operations on the biliary and pancreatic systems justified the diagnosis of carcinoma of the head of the pancreas. The findings were of such a nature that differentiation from cancer is almost impossible. There was recovery with relief of symptoms after temporary or permanent drainage of the bile passages which excluded the possibility of malignancy. At necropsy on the three patients that died, the postoperative and post-mortem changes were so marked, the characteristic operative findings were completely altered; consequently, post-mortem examination has added very little to our knowledge of pancreatic lymphangitis. It is probable that the infection causing the pathologic enlargement of the head of the pancreas in these cases travels through the lymphatics, causing lymphangitis in the pancreatic interstitial tissue. This supposition explains the improvement and cure with the subsidence of the inflammatory enlargement of the head of the pancreas which follow operation. The origin of infection is often obscure.

Treatment consists in drainage of the bile passages, temporary or permanent. The former is obtained by surface drainage of the gall-bladder and common duct; the latter, by anastomosing the gall-bladder to the duodenum or stomach.

Observations Based on Seventy Cases of Bowel Obstruction with Special Reference to the Unusual Cases

DR. WALTER C. G. KIRCHNER, St. Louis: Obstructions due to hernia were encountered in forty-seven cases, or in 10 per cent., of the hernias operated on. Most of the cases of ileus were seen in the critical stages, and the mortality rate was 52 per cent. In the seventy cases postoperative ileus due to adhesions occurred ten times, with a mortality of 50 per cent. The appendix was implicated in 8 per cent. of the cases. Resection of bowel was performed in 25.7 per cent. of the cases, with a mortality of 27 per cent. The intestinal obstructions which were encountered were those caused by adhesion, carcinoma, fibromyoma, intussusception, volvulus, interstitial hernia, excessive dilatation of colon, gall-stone, prolapse of intestines through rupture in mesentery, prolapse of intestine through rent in omentum, thrombosis of superior mesenteric artery, etc.

Obstruction of the bowel is essentially a surgical condition, and the mortality rate is in direct proportion to the duration of the obstruction. Greater stress should be laid on the necessity for early operation in bowel obstruction. In the early cases of obstruction, resection may be a safe procedure, while in the critical cases primary enterostomy and later resection of bowel or repair of fecal fistula is a better course to pursue.

Cancer of the Uterus and Fibroid Tumors from a Clinical Standpoint

DR. EDWARD JOSEPH ILL, Newark: From personal experience, I hold that fibroid tumors are not a cause of malignant degeneration of the uterus. Among 443 operative cases in my own hands there is no record of any fibroid having undergone malignancy, nor is there any record among 2,600 cases recorded in my office case book of any having undergone malignancy, although many of these cases were seen repeatedly for years. The necropsy records of hospitals variously situated show that from 4 to 8 per cent. of all women over 30 years have fibroid tumors. During the same time that the 443 operations of fibroid tumor took place, I operated on 175 cases of cancer of the uterus. Five of these cases had fibroids in the uterus; four were cases of true carcinoma; one case, a sarcoma, had small fibroids in the posterior wall, while the sarcoma was situated in the anterior wall behind the scar of an old fixation operation. It is thus shown that all my cancer cases had but 2.8 per cent. of fibroids, which is less than the average of all women over 30 years. My deductions are that we have no right to suggest the operation for removal of fibroid tumors when possible future malignant degeneration constitutes the only indication.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

September, XV, No. 2, pp. 131-239

1 Histogenesis and Morphogenesis of Thoracic Duct in Chick; Development of Blood-Cells and Their Passage to Blood-Stream via Thoracic Duct. A. M. Miller, New York.
2 *Prenatal and Neonatal Lung. W. H. F. Addison and H. W. How, Philadelphia.
3 Development of Cerebral Ventricles in Pig. C. H. Heuser, Boston.

2. **Prenatal and Neonatal Lung.**—According to Addison and How, during prenatal life the future respiratory passages are filled with a liquid. With the first inspirations of air, the thoracic cavity is enlarged by the action of the respiratory muscles, the lung is thereby enlarged, and the liquid in the trachea and bronchi is drawn down into the lung, and is distributed along the walls of the alveolar and other spaces. In microscopic sections of lung taken from fetal animals, there is seen a finely granular substance (a precipitate from the fluid present) widely scattered through the spaces; and large mononuclear cells, probably phagocytic in function, are found uniformly distributed in small numbers. In sections of lung of neonatal animals the finely granular substance is still found, usually close to the walls of the air-spaces and fewer mononuclear cells are seen. Before breathing, the lining epithelial cells of the alveoli are irregularly cuboidal with rounded nuclei; but after breathing, with the increased area of the walls of the alveoli, the nuclei are spaced farther apart, the cytoplasm is drawn out and the cells are very thin and flat. After breathing has begun, the mesenchyme appears denser, with its nuclei more compacted, and the blood-vessels are distended and more conspicuous.

Annals of Otology, Rhinology and Laryngology, St. Louis

June, XXII, No. 2, pp. 273-580

4 Removal of Adenoids by Direct Inspection. J. C. Beck, Chicago.
5 When to Operate on Labyrinth in Labyrinth Infection Secondary to Purulent Otitis Media. G. E. Shambaugh, Chicago.
6 Some Attempts at Intranasal Transplantation of Nasal Tissues. S. Iglauer, Cincinnati.
7 Case of Paracoustic Vertigo and Nystagmus Cured by Operation on Labyrinth. J. R. Page, New York.
8 Atrophic Rhinitis with Ozena—Its Etiology and Surgical Treatment. F. P. Emerson, Boston.
9 Intranasal Treatment of Meckel's Ganglion. E. M. Holmes, Boston.
10 Bronchoscopic Removal of Collar Button after Twenty-Six Years' Sojourn in Lung. C. Jackson, Pittsburg.
11 Combined Laboratory and Roentgen-Ray Indications for Mastoid Operation. G. S. Dixon, New York.
12 Ocular Manifestations in Nasal and Aural Diseases which Probably Indicate Involvement of Sympathetic Nervous System. W. H. Haskin, New York.
13 Results in Series of Cases of Tonsillectomy at Massachusetts General Hospital, Three to Four Years after Operation. J. P. Clark, Boston.
14 Removal of the Fibromyoma which Excluded Auditory Canal; Hemophilia. M. D. Ledermann, New York.
15 Abscess of Frontal Lobe of Brain, of Otitic Origin, with Exhibition of Specimens. A. P. Berens, New York.

16 Suspension Laryngoscopy with Demonstration of Method. W. Freudenthal, New York.
17 Training of Specialist. T. J. Harris, New York.
18 Clinical Indications for Mastoid Operation. W. S. Bryant, New York.
19 Congenital Osseous Obstruction of Postnasal Orifices. C. W. Richardson, Washington, D. C.
20 Intra-Ocular Tension in Glaucoma Lowered by Injection of Sphenopalatine Ganglion. H. E. Miller, St. Louis.
21 Peritonsillar Phlegmon—Report of Case. F. E. Hopkins, Springfield, Mass.
22 Primary Tuberculosis of Middle Ear. C. H. Long, Chicago.
23 Case of Temporosphenoidal Abscess of Otitic Origin—Operation—Recovery. J. F. McCaw, Watertown, N. Y.
24 Sinus Thrombosis following Necrosis of Periosteal Flap. O. Glogau, New York.
25 Case of Paralysis of Abducens Nerve Associated with Acute Mastoiditis. H. Hays, New York.

Boston Medical and Surgical Journal

September 18, CLXIX, No. 12, pp. 409-448

26 Workmen's Compensation Act from Legal Standpoint. J. C. Johnston, Boston.
27 Workmen's Compensation Act as Viewed by Member of Industrial Accident Board. D. M. Holman, Taunton, Mass.
28 Workmen's Compensation Act as it Affects Physician. R. M. Merrick, Dorchester, Mass.

Bulletin of Johns Hopkins Hospital, Baltimore

September, XXIV, No. 271, pp. 263-294

29 Osteitis Deformans, Paget's Disease. S. H. Hurwitz, Baltimore.
30 *Diabetes in Early Infancy. J. H. M. Knox, Baltimore.
31 Production of Passive Hypersensitiveness to Tuberculin. C. R. Austrian and H. Fried, Baltimore.
32 Striking Examples of Subnormal Accommodative Power. S. Theobald, Baltimore.
33 Unilateral Sclerosis of Pulmonary Artery. F. A. Evans, Pittsburgh.
34 Value of Nasopharyngeal Surgery in Treatment of Chronic Exudative Otitis Media. H. O. Reik, Baltimore.

30. Diabetes in Early Infancy.—In connection with the report of an instance of diabetes mellitus in early infancy, Knox presents briefly other cases of the same disease occurring during the first year of life. The urinary findings are usually incomplete, but a consideration of all the symptoms given warrants the probable diagnosis of diabetes mellitus in the cases of fifteen additional babies under one year reported from 1852 to the present. The majority of these cases were males. Knox found that heredity seems to have played but little part. Continuous over-feeding of sugar preceded the onset in three cases. Injury to or alteration of the central nervous system was often associated with the beginning of the malady. The more common symptoms were increased thirst and hunger, loss of weight, polyuria and glycosuria; acidosis and coma occasionally ended the scene. Knox regards the prognosis as grave, but not hopeless, even in infancy, except in a severe grade of the disease. He insists that treatment should be begun early, and, although more difficult in carrying out, should follow the lines found most successful in the treatment of diabetes in adults, i. e., the patient's carbohydrate tolerance should be determined and the sugar content of the diet (milk mixture) correspondingly reduced, the calorific requirements being furnished by fats and proteids. An "oatmeal day" or days should be given at frequent intervals.

California State Journal of Medicine, San Francisco

September, XI, No. 9, pp. 341-386

35 *Experience with Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. F. Fehleisen and M. Rothschild, San Francisco.
36 Primary Infection with Tubercle Bacilli, with Special Reference to Thoracic Lymph-Nodes. P. K. Brown, San Francisco.
37 *Management of Fractured Charcot Hip-Joint. R. Brown, Santa Barbara.
38 Meniere Symptom-Complex. H. Hastings, Los Angeles.
39 Modern Therapy of Syphilis. V. Vecki, San Francisco.
40 Luetin as Aid in Diagnosis of Syphilis. E. S. Loizeaux, Sacramento.
41 Chronic Intestinal Amebiasis, without Dysentery. R. S. Cummings, Los Angeles.
42 Cutaneous Reaction of Syphilis (Luetin Reaction). J. M. Wolfsohn, San Francisco.
43 Enteroclysis in Treatment of Weak Hearts. W. W. Kerr, San Francisco.
44 Orthopedic Treatment of Spinal Poliomyelitis. J. T. Watkins, San Francisco.
45 Blood Changes that May Assist in Diagnosis of Cancer. D. H. Currie, Honolulu, Hawaii.

35. Artificial Pneumothorax in Pulmonary Tuberculosis.—Rothschild believes now that it is well worth while to try an artificial pneumothorax in all one-sided cases of tuberculosis in which no improvement seems to take place under the ordinary treatment, and in which the inflation is possible, that is, where the adhesions are not so extensive that they prevent an inflation and compression. If the patient shows signs of improvement under the treatment with artificial pneumothorax, keep it up; if not, do not reinflate. The same principle should be followed in regard to the other side—in case this should be slightly affected. If it should improve through the increased aeration, which the compression of the other side necessitates, keep up the artificial pneumothorax on the bad side; if it should get worse, interrupt the treatment. Roentgen rays will not help much and are often hard to use continually. The proper physical examination in connection with careful clinical observation has been sufficient in all cases to guide Rothschild correctly.

37. Fractured Charcot Hip-Joint.—To cure such a fracture, Brown says, the hip-joint must be obliterated—an arthrodesis must be performed. Success is to be gained only by excision of the entire capsule and synovial membrane, complete removal of the cartilage bearing bony structure from the head of the femur and from the acetabulum and cutting away of all excess bone. To secure firm bony union the neck of the femur must be nailed to the acetabulum. The reduction of the fracture and the maintenance of the fragments in apposition is likewise attained by this last step as the nails are driven through the neck in a direct line from the base of the great trochanter. The steps in the operation are: (a) A large U-shaped incision is made over the hip with the trochanter in the center of the U. (b) With a chain-saw, the trochanter is sawed off downward and outward and then retracted with its attached muscles upward. (c) The obturators and pyriformis muscles are divided and ends transfixed for subsequent approximation. Free access is now had to the joint to permit of the removal of the capsule and cartilages.

Illinois Medical Journal, Chicago

September, XXIV, No. 3, pp. 141-200

46 Diagnosis of Feeble-Mindedness. H. H. Goddard, Vineland, N. J.
47 Some Types of Feeble-Minded. C. B. Caldwell, Lincoln.
48 Psychologic Clinic as Eugenic Agency. C. H. Town, Lincoln.
49 How Old the New in Medicine and Surgery. J. J. Walsh, New York.
50 Illinois County Tuberculosis Act. E. Mammen, Bloomington.
51 Fractures about Elbow-Joint. C. A. Stevens, Chicago.
52 *Experimental Study of Intestinal Sutures. G. T. Courtenay, Chicago.
53 Hemorrhage in New-Born. M. T. Goldstine, Chicago.

52. Intestinal Sutures.—Nine varieties of suture materials were used by Courtenay in his experiments, as follows: human hair, horse hair, linen, plain and paraffin; silk, Nos. 7 and 13; catgut, Nos. 00, 1 and 2. In ten dogs the abdomen was opened, observations made and the specimens removed at the end of twenty-four hours; in another ten at the end of forty-eight hours, and in the third ten at the end of ninety-six hours. Each dog was subjected to at least one kind of material, and in some instances two different kinds were used in the same animal. None of the animals died, and in none was there any marked degree of peritoneal infection. The ideal result, he says, is that in which there might be a perfect coaptation without reaction, and this is most nearly approached by using human hair as a suture. Since the amount of reaction is closely related to the amount of seepage and leakage, both of which are greater with the heavier sutures, Courtenay concludes that the finer the suture the better the result. Human hair withstands a tremendous pressure, whereas the heavy catgut invariably cuts through the bowel. Safety of result lies not in the inherent strength of the suture, but rather in the perfection of approximation and minimum of reaction. From a clinical standpoint the suture of choice is that which is of a fine texture, readily prepared and the finest that can be conveniently employed by an individual operator.

Iowa State Medical Society Journal, Clinton

September, III, No. 3, pp. 147-218

54 Importance of Laboratory Examinations in Early Infancy and Childhood. G. N. Ryan, Des Moines.
55 Gonorrhea. F. J. Jarvis, Oskaloosa.
56 Study of Uterine Fibroids. M. H. McLean, St. Louis.
57 Value of Roentgen Ray as Diagnostic Aid in Diseases of Accessory Nasal Cavities. R. H. Parker, Des Moines.
58 Surgical Treatment of Pyosalpinx. H. D. Gray, Des Moines.
59 Hemiplegia and Hemiplegia State. R. C. Doolittle, Des Moines.
60 Pathology of Gonorrhea. J. W. Shuman, Sioux City.
61 Pneumonia in Children. F. M. Fuller, Keokuk.
62 Treatment of Atrophic Rhinitis. F. W. Bailey, Cedar Rapids.

Journal-Lancet, Minneapolis

September 1, XXXIII, No. 17, pp. 475-499

63 Pellagra, with Report of Two Cases. C. T. Granger, Rochester, Minn.
64 Public Health Education. G. W. Parsons, Sioux Falls, S. D.
65 Life Insurance Examinations. F. W. MacManus, Williston, N. D.

September 15, No. 18, pp. 501-532

66 Two Cases of Pons Tumors, One of Sarcoma and One of Gliosarcoma, with Hemorrhage. W. H. Bodenstab, Bismarck, N. D.
67 Private Laboratory—Does It Pay? C. U. Moore, Carthage, S. D.
68 Sex Education from Physician's Viewpoint. R. P. Frink, Wagner, S. D.
69 Some Features in Local Practice of Medicine. R. H. Ray, Garrison, N. D.
70 *Simple and Safe Method of Preparing Catgut. H. W. Barbour, Edgeley, N. D.

70. **Simple and Safe Method of Preparing Catgut.**—In Barbour's method the raw catgut is cut in 18-inch lengths. Each length is wound on a glass tube three-fourths inch in length. Get tubing that is used as water-gauges in steam boilers, and have them cut up in proper lengths. The gut is so wound on this tubing that the first turns fasten each end of the ligature to prevent unwrapping. The winding should be done smoothly, not allowing one turn to overlap the other. It is next placed in a solution composed of 1 part of tincture iodin in 15 parts of 90 per cent. alcohol, where it remains for ten days. At the end of ten days it is placed in a 2 per cent. watery solution of formaldehyd for twenty-four hours to render it somewhat harder, after which it is stored in 95 per cent. alcohol to which ½ grain of mercuric chlorid has been added for every ounce of alcohol. If desired it may be rinsed in sterile water before use. Barbour has soaked coils of catgut in a bouillon culture of anthrax, placed them in iodin solution and made cultures daily, and has found the gut sterile after the seventh day. He has not been able to detect any change in the catgut after it has been stored for six months. It has given good satisfaction in general surgical work and for skin sutures.

Journal of Biological Chemistry, Baltimore

September, XV, No. 3, pp. 385-528

71 *Protozoan Protoplasm as Indicator of Pathologic Changes: In Nephritis. L. L. Woodruff and F. P. Underhill, New Haven, Conn.
72 *Idem: In Carcinoma. F. P. Underhill and L. L. Woodruff, New Haven, Conn.
73 Formation of Hydrocyanic Acid from Proteins. H. W. Emerson, H. P. Cady and E. H. S. Bailey, Kansas City.
74 Preliminary Report on Production of Hydrocyanic Acid by Bacteria. B. J. Clawson and C. C. Young, Kansas City.
75 Chemical Differentiation of Central Nervous System: Chemical Differentiation of Brain of Albino Rat during Growth. W. Koch and M. L. Koch, Philadelphia.
76 Presence of Adenase in Human Body. E. R. Long, Chicago.
77 Glyoxalase: Distribution of Enzyme and Its Relation to Pancreas. H. D. Dakin and H. W. Dudley, New York.
78 Action of Leukocytes and Other Tissues on dl- Alanin. P. A. Levene and G. M. Meyer, New York.
79 Case of Pentosuria. P. A. Levene and F. B. LaForge, New York.
80 New Method for Determination of Urea in Blood. E. K. Marshall, Baltimore.
81 *Determination of Urea in Urine. E. K. Marshall, Baltimore.
82 Blood Glycolysis: Its Extent and Significance in Carbohydrate Metabolism: Supposed Existence of "Sucre Virtuel" in Freshly Drawn Blood. J. J. R. Macleod, Cleveland.
83 Researches on Purines. C. O. Johns and E. J. Baumann, New Haven, Conn.

71. **Protozoan Protoplasm as Indicator of Pathologic Changes.**—An attempt was made by Woodruff and Underhill to demonstrate the existence of chemical changes arising from pathologic conditions by determining the effects of normal and pathologic tissue extracts on a unicellular animal, paramecium. To initiate an experiment a single paramecium was isolated with a capillary pipet under a Zeiss binocular microscope and placed in a watch glass with a small amount of culture medium (hay infusion) similar to that employed for the main lines of the race. When, in the course of a few days, this animal by division had produced a sufficient number of cells for the experiment each of the organisms was isolated on a clean depression slide and supplied with five drops of the extract to be tested. Each extract was tested on eight lines of sister cells for five days. Every day a single animal was isolated from each of the lines, placed on a clean depression slide and supplied with five drops of the extract from the test tube containing that day's supply.

At the time of isolation a record was made of the number of divisions in each of the eight lines of cells during the previous twenty-four hours and these data are the basis of the results submitted in the present paper. These, in brief, are: Paramecium fails to indicate any essential difference in its division rate when subjected to the influence of extracts prepared from the separate kidneys of one rabbit or from kidneys of different individuals. Kidney extracts made from a starving rabbit behave in a manner identical with normal kidney extracts of well-fed animals. The division rate of paramecium is markedly depressed when placed in kidney extracts of rabbits with tartrate nephritis. It has been demonstrated that this depressant influence cannot be associated primarily with tartrate which has accumulated in the kidneys, since quantities which could be present according to chemical tests would produce the opposite effect, namely slight stimulation of the division rate. Moreover, the depressant action of kidney extracts prepared from animals receiving large doses of tartrate is no greater than with extracts of nephritic kidneys of animals that had been given small doses of tartrate. From these facts it is apparent that the pathologic change—hence, presumably chemical alteration—in the renal tissue itself is responsible for the action observed on the division rate of paramecium.

The authors conclude that paramecium, therefore, may be regarded as a biologic indicator of chemical change; and it is proposed to employ this biologic method for the detection of chemical change under a variety of normal and pathologic conditions.

72. **Idem.**—In certain concentrations extracts of carcinoma of the breast showed a very pronounced depressant influence on the division rate of paramecium when compared to that obtained with paramecium bred in normal mammary tissue extract. In some instances the depressant influence may be so profound as to lead to the death of the paramecia within two or three days. Weaker dilutions of the abnormal tissue extracts may show a stimulating action on paramecium. It has been demonstrated that the difference in concentration which may exist between the normal and abnormal breast tissue extracts cannot be held responsible for the detrimental action of the abnormal extract on paramecium, for when the concentrations of the two extracts under discussion are made as nearly equal as possible the original type of action still is observed.

81. **Determination of Urea in Blood.**—The blood is drawn in the usual manner and allowed to stand on ice until clotting is complete. As shown below the urea content of the serum does not change after standing even for three or four days; the blood can, therefore, be kept on ice over night, if desired. Two equal portions of the serum are measured into ordinary test-tubes, 1 c.c. of the soy bean extract added to one tube, and about 0.5 to 1.0 c.c. of toluene to each. If sufficient serum is available, 10 c.c. portions should be used; however, perfectly satisfactory results can be obtained by using 5 c.c. or even 3 c.c. portions of the serum. The tubes are tightly stoppered, and allowed to remain at room temperature until the conversion of the urea into ammonium carbonate is complete. Generally, they are allowed to stand over night,

although four to five hours is usually amply sufficient for the completion of the reaction. The contents of the tube containing the serum and extract are transferred to cylinder A, and washed in with a very small amount of water (not more than 5 c.c.). Two grams of sodium chlorid, an equal volume of alcohol and a layer of kerosene oil are added to the cylinder. The contents of the other tube are transferred to cylinder B and treated in exactly the same manner. Twenty-five c.c. of N/50 hydrochloric acid and about 25 c.c. of water are placed in each of the 200 c.c. Erlenmeyer flasks used for the absorption of the ammonia. The different parts of the apparatus are now connected and about 0.5 gram of sodium carbonate added to each cylinder. A rapid air current is passed through the apparatus until all the ammonia has been removed from the cylinders. With a good suction pump, one hour suffices. The excess of acid in the absorption flasks is titrated with N/50 sodium hydroxid and alizarin sodium sulphonate. The amount of acid neutralized in the flask attached to cylinder B corresponds, of course, to the ammonia present in the serum, while the amount used in the other two flasks represents the urea plus the ammonia. The difference corresponds to the urea in terms of N/50 hydrochloric acid, and multiplied by 0.0006 gives the urea in grams present in the amount of serum taken for the determination.

Journal of Cutaneous Diseases, New York

September, XXXI, No. 9, pp. 611-696

84 Intense Bronzing with Cutaneous Tumors in Case of Malignant Lymphoma (Hodgkin's Disease). J. T. Bowen, Boston.
85 Leukocytes in Syphilis. H. H. Hazen, Washington, D. C.
86 Salvarsan and Neosalvarsan in Syphilis: Comparative Study. H. H. Whitehouse and A. S. Clark, New York.
87 Experience of Medical Profession of Toronto in Treatment of Syphilis with Salvarsan. D. King-Smith, Toronto.

Kentucky Medical Journal, Bowling Green

September 1, XI, No. 17, pp. 745-778

88 Prolapse of Uterus and Its Treatment. L. Bloch, Louisville.
89 Chronic Constipation. B. Asman, Louisville.
90 Some Phases of Tabes Dorsalis. B. D. Choate, Louisville.

Medical Record, New York

September 20, LXXXIV, No. 12, pp. 507-552

91 Some Phases of Surgery of Stomach. G. Woolsey, New York.
92 Cause and Prevention of Cardiosclerosis. L. F. Bishop, New York.
93 *Anaphylaxis and Asthma. J. Matthews, Rochester, Minn.
94 Administration of Tuberculin by General Practitioner. M. Solis-Cohen, Philadelphia
95 Vaccine Treatment of Typhoid. W. H. Watters, Boston.
96 Functions of Psychologic Clinic. J. E. W. Wallin, Pittsburgh.
97 Bier's Artificial Hyperemia as Therapeutic Agent. M. Davidoff, New York.
98 Absence of "Sausage-Shaped Tumor" and "Mass Per Rectum" in Intussusception in Infants. L. M. Kahn, New York.
99 Easy Method of Administering Salvarsan and Neosalvarsan Intravenously. E. G. Ballenger and O. F. Elder, Atlanta, Ga.

93. **Anaphylaxis and Asthma.**—During the past four years there have been examined in the Mayo Clinic about 300 cases of asthma. Matthews says that in over 90 per cent. of the cases the principal lesions which might be considered as etiologic were in the upper respiratory tract. Chronic suppuration or the retention of mucoid secretions in the nose or accessory sinuses occurred in the majority of these cases. Treatment was directed toward the object of securing free and continuous drainage of every portion of the tract and little attention was paid to possible reflex factors of etiology. In the majority of the cases the relief of the asthma corresponded almost exactly with the degree of success in obtaining the result sought, that is, the prevention of the retention and reabsorption of mucous secretions. Matthews states that the relief of asthma by any known treatment does not mean that the patient is permanently cured, since the susceptibility remains throughout life and symptoms will recur whenever there exist conditions favorable to the production and absorption of the specific antigen to which the individual is sensitive. Various methods of desensitizing animals have been discovered but no method yet reported gives a lasting immunity and all are attended by high mortality. Until a safe and efficient method of desensitization is possible the treatment of asthma must be directed as in the past to the relief of symptoms by whatever measures are indicated in each individual case.

Missouri State Medical Association Journal, St. Louis

August, X, No. 2, pp. 43-80

100 Physiology of Defecation and Etiology of Habitual Constipation. W. H. Stauffer, St. Louis.
101 *Diet in Habitual Constipation. J. M. Bell, St. Joseph.
102 Drugs and Constipation. O. B. Hall, Warrensburg.
103 *Surgical Treatment of Chronic Constipation. A. E. Hertzler, Kansas City.
104 Roentgenoscopy in Habitual Constipation. E. H. Skinner, Kansas City.
105 Gauze or Rubber-Tube Drainage for Peritoneal Cavity. H. J. Jurgens, Edina.
106 Our State Hospitals. W. F. Kuhn, Kansas City.
107 Tubercular Laryngitis. D. A. Vanderhoof, Colorado Springs.
108 Nitrogen Poisoning. J. J. Gaines, Excelsior Springs.

101. **Diet in Habitual Constipation.**—The keynote of diet, for habitual constipation, Bell says, is the selection of foodstuffs containing a large amount of cellulose—woody fiber, which does not digest, but reaches the colon as cellulose—and those foodstuffs which leave distinct bulk of residue, so as to gently stimulate weakened muscles and blunted nerve reflexes. And they must be eaten in abundance, for constipation exists frequently as the result of a too abstemious diet, even with the colon and the rectum normal. Consequently those foods which are capable of complete digestion and leave little or no residue, such as rice, mashed potatoes, white bread and tender meats, must be used very sparingly. Some discrimination must be exercised even with coarse vegetables; and those essentially flatuous—boiled cabbage and cauliflower—must be excluded. Cabbage, raw, in the shape of cold slaw, may be used; being largely indigestible, its food value is diminished, but the cellulose content furnishes peristaltic stimulation. Bran in some form is to be used every day, either dry with cream and sugar as a breakfast food, or made into muffins, or made into bread. If it is not well tolerated, pumpernickel may be substituted, preferably a day or two old; it must be well chewed. Fletcherism is not advocated, since the degree of mental concentration involved is apt to act perniciously, especially with the neurotic. To complete the breakfast, an egg may be added, with fried potatoes and fruit, preferably fibrous—figs, dates, raisins. In regard to eggs, if there be a distinct indicanuria, animal food of all kinds, except butter and cream, is interdicted for one or two weeks.

If there be a neurosis or hyperchlorhydria, coffee is cut off indefinitely, and no fluid but cold water is permitted. The mid-day meal is made up of vegetables, nutritious, yet containing as much cellulose as possible—peas, beans, corn, turnips, parsnips, with whole wheat bread and fresh greens; if in season, lettuce, spinach, celery and cold slaw. Fruit is preferable for dessert to pastry or pudding. Juicy fruit, or fruit salads are allowed. The diet list must be liberal, otherwise appetite fails and the desired result is lost because of lack of bulk. For the evening meal, fruit alone is most effectual, unless the patient be a mechanical artisan or a laborer, in which case the noonday list may be repeated. An evening meal of an orange or two, with apples, figs, dates, raisins and fruit salad is satisfying to the appetite and body and aids peristalsis materially. A whole wheat or bran muffin may be added, also cold slaw or lettuce.

The general objection of insufficient caloric value is without foundation in Bell's experience, for this very outline is followed in his practice with excellent results. Calories may be increased by means of added butter and cream. The albuminous content may be well maintained by increasing the whole wheat, peas, beans and corn. The only possible objection to be made is the lack of stimulation suffered by abstinence from animal food. This is not complained of for a week, or two, in most cases. When it is so, animal food may be added to the mid-day meal. Such a diet as suggested will make four to five stools daily with some patients, while with others no more than one. Liberal meat eaters sometimes complain of being starved, but the impression is largely mental, for they lose no weight or strength. Coffee is not to be condemned categorically. There are cases in

which coffee creates enough peristalsis for a liberal stool at once after breakfast; when this is the case, unless there be hyperchlorhydria or neurosis, it is permitted once daily. After a period of from one to two weeks, when the coated tongue and malaise have disappeared, when headache and dizziness have gone, when clear mental and physical vigor return and a habit of two or three daily stools is inaugurated, the diet list is made more liberal.

103. **Surgery and Constipation.**—The tendency at the present time, Hertzler believes, is to apply surgical procedures for the purpose of lessening the resistance to a peristaltic force which has become permanently weakened. However, before a condition becomes surgical it must have been determined that the gut force is permanently weakened, and at the present time we are not able to do this with any degree of certainty. When we come to recognize clearly, he says, that there is no anatomic basis for this class of constipation, we may be able to come to some decision as to when an alteration of anatomic conditions is indicated for the purpose of lightening the burden of a weakened gut. Obviously, such an indication cannot be formulated until the exact factors active in a given case are determined. In the presence of a cause which can be removed by medical means operation is not indicated, and unless we find a cause the case cannot be treated logically. The little tinkering operations based on hypothetic conditions are certainly not indicated. If any operation at all is necessary it is an ileosigmoid anastomosis.

New York Medical Journal

September 20. XCVIII, No. 12, pp. 549-596

109 Preoperative Caution to Avoid Postoperative Calamities. H. A. Wilson, Philadelphia.
110 *Position of Stomach in Children in Relation to Posture. J. W. Sever, Boston.
111 Climate of San Diego, California Region, with Relation to Renal Diseases. P. M. Carrington, St. Louis.
112 Differentiation between Moronism and Ignorance. H. A. Knox, Ellis Island, N. Y.
113 Uses and Limitations of Paraffin in Treatment of Ozena. J. Auerbach, New York.
114 Traumatic Periostitis of Lumbosacral Spine. C. E. Coon, Syracuse.
115 Retropharyngeal Abscess. W. C. Billings and J. G. Wilson, New York.
116 Cylinder Showers, Their Significance. B. G. R. Williams, Paris, Ill.

110. **Position of Stomach and Posture in Children.**—In eighty-three cases of general average developed children Sever found that the average position of the stomach is a much lower one than had been previously suspected, and that to find a stomach at or well below the crests of the ilium is not at all unusual. But one of these children had symptoms which were due to a dilated colon, which condition caused chronic constipation, and not to a stomach which showed a moderate ptosis. They were otherwise perfectly well as far as their digestive apparatus was concerned. The shape of the child's stomach as seen in this series was generally large and either horizontal or of the sink drain type. The ideal so-called cow-horn stomach was rare. Sever does not believe that posture in children, apart from the erect position of humans in general, has nearly as much to do with ptosis as has formerly been believed. What he believes has been shown proves that the child's stomach is lower than is generally supposed, and to find a stomach low in a child does not therefore mean that there is a pathologic ptosis. It is of course obvious that poor posture should be corrected and impaired general health built up, but he believes that neither is a cause of ptosis in children, nor that a low stomach is necessarily a weak link in the chain of a child's development.

Southern Medical Journal, Nashville

September, VI, No. 9, pp. 561-628

117 Case of General Sepsis following Peritonsillar Abscess. H. H. Martin, Savannah, Ga.
118 Sequelae of Ecuptive Fevers. W. S. Britt, Eufaula, Ala.
119 Etiology, Prophylaxis and General Management of Enterocolic Infections in Infants. E. P. deBellard, Birmingham, Ala.
120 Neglected Points in Care of Infants and Young Children. W. P. Herbert, Asheville, N. C.
121 Dermatitis Venenata following Use of Hair Stain. J. L. Kirby-Smith, Jacksonville, Fla.
122 Successful Method of Performing Shockless Operations Based on Clinical Experience of 3,000 Cases. G. W. Crile, Cleveland.
123 *Treatment of Cutaneous Epitheliomas. J. H. Edmondson, Birmingham, Ala.
124 Surgical Anatomy of Regio Tonsillaris. A. G. Brenizer and A. M. Wisnant, Charlotte, N. C.
125 Symptoms of Goiter. E. G. Jones, Atlanta, Ga.
126 Brief Comparison of Technic of Broncho-Esophagoscopy with Jackson's and Brunings' Methods. R. McKinney, Memphis.
127 Removal of Superfluous Skin Around Neck for Relief of Headache: Report of Case. M. Henning, Memphis, Tenn.
128 Physicians Need Not Fear Progress. O. Dowling, New Orleans.
129 Sambon, the Man, and His Later Investigations of Pellagra. J. H. Taylor, Columbia, S. C.
130 Preventive Medicine. T. J. Dean, Union Springs, Ala.
131 Dental Clinics in Public Schools. A. B. Horn, Union Springs, Ala.
132 Alcohol as Public Health Problem. B. C. Keister, Roanoke, Va.
133 Gastrosuccorrhea Continua Periodica. J. R. Verbrycke, Washington, D. C.

123. Abstracted in THE JOURNAL, May 3, p. 1389.

Surgery, Gynecology and Obstetrics, Chicago

August, XVII, No. 2, pp. 137-270

134 Lateral Curvature. E. G. Abbott, Portland, Maine.
135 Treatment of Lateral Curvature of Spine. R. Whitman, New York.
136 *Surgical Treatment of Pelvic Thrombosis of Septic Origin. H. Jellett, Dublin, Ireland.
137 Prostatectomy. J. B. Deaver, Philadelphia.
138 *Regeneration of Bone from Periosteum. S. L. Haas, San Francisco.
139 *Mechanism of Stomach after Gastro-Enterostomy by Means of Roentgen Ray. J. H. Outland, E. H. Skinner and L. Clendening, Kansas City.
140 Intussusception of Stomach and Duodenum Due to Gastric Polypus. H. Wade, Edinburgh, Scotland.
141 Ileo-Appendicular Hernia of Appendix. L. W. Allen, San Francisco.
142 Indications for Abdominal Cesarean Section. R. Peterson, Ann Arbor, Mich.
143 Transplantation of Tumors in Animals with Spontaneously Developed Tumors. M. S. Fleisher and L. Loeb, St. Louis.
144 *Sigmoid Adhesion. H. A. Royster, Raleigh, N. C.
145 Acute Invagination of Ileum Secondary to Sarcoma of Small Intestine. C. J. Miller, New Orleans.
146 Suprapubic Prostatectomy. H. Cabot, Boston.
147 Bilateral Urinary Calculi: Report of Cases. D. N. Eisendrath, Chicago.
148 *Influence of Thyroid on Pregnancy and Lactation. W. M. Thompson, Chicago.
149 Cholecystostomy by Oblique Fistula. J. Weiner, New York.
150 *Gastrostomy Suggestion. E. M. McGuire, Buffalo.
151 Air in Ventricles of Brain, Following Fracture of Skull. W. H. Luckett, New York.
152 Juxta-Epiphyseal Sprain and Sprain Fracture of Lower End of Radius. K. Speed, Chicago.
153 *Apparatus—Anesthetometer—for Measuring and Mixing Anesthetic and Other Vapors and Gases. K. Connell, New York.
154 Modification of Skene's Retention Catheter. J. R. Eastman, Indianapolis, Ind.

136. **Treatment of Pelvic Thrombosis of Septic Origin.**—In 1911, two patients died in the Rotunda Hospital of pyemia, in one of whom, prior to death, a diagnosis was made of cellulitis in the region of the right utero-sacral ligament. In both of them at the post-mortem examination thrombosis was found in the ovarian veins. Jellett accordingly decided that, if there was another case presenting similar symptoms, and if there was any reason to think that thrombosis had occurred, he would interfere by operation and try to remove the affected vein or veins. Since then he has had to deal with four cases. In three of them an almost positive diagnosis of thrombosis was made before the operation, both from the physical signs and from the symptoms of the patient so strongly suggested the possibility of thrombosis that he opened the abdomen to explore. He found a hard, brawny swelling in the right broad ligament that could be traced to the infundibulo-pelvic ligament and along the course of the ovarian vessels upward beside the lumbar vertebrae. The tube was congested, but otherwise normal. He tied the uterine end of the broad ligament and incised the peritoneum over its face, and then with a little dissection was able to enucleate the mass in the broad ligament and to trace it upward along the course of the ovarian vessels, until he got up almost to the insertion of the vein into the vena cava. He tied the vein as high as possible and then removed the whole mass. The swelling in the broad ligament con-

sisted of the thrombosed branches of the ovarian vein, and the main trunk contained pus in its lower part, while its upper part was occupied by a thrombus that had not yet broken down. Three other similar cases are cited.

138. **Regeneration of Bone from Periosteum.**—On forty rabbits, two dogs and two cats, sixty-two observations were made by Haas. The experiments varied in duration from four to 249 days and extended over a period of two years. Under ether anesthesia the skin was shaved and painted with tincture of iodin. Incision was made through the skin over the selected ribs to the subcutaneous tissues. In case blood-clot was to be used in the experiment, the blood was collected in a sterile tube from the superficial vessels. Incision was next made through the muscles to expose the ribs, the latter being treated according to the demands of the experiment. The severed muscles were restored and the skin closed with silk sutures.

There are nineteen groups of experiments, in which the following methods are presented: 1. Simple subperiosteal resection. 2. Simple subperiosteal resection in which a small island of bone is allowed to remain in the periosteal gutter. 3. Simple subperiosteal resection of rib, remaining ends of which are covered with lead caps. 4. Elevation of rib from periosteal bed, from which it is separated by interposed muscle. 5. Same as 4, with addition of blood-clot in the periosteal gutter. 6. Extensive subperiosteal resection of rib, including costal cartilage, with addition of blood-clot to center of periosteal gutter. 7. Same as 6, excepting that the sternal side is blocked off with paraffin. 8. Same as 6, excepting that both sternal and vertebral sides are blocked off with paraffin. 9. Subperiosteal resection with paraffin at both ends, the interval between remaining empty. 10. Elevation of and removal of a section of the rib, the free ends being placed inside of a rubber tube.

Some of the deductions made by Haas are as follows: 1. The regeneration of bone may take place in two ways: (a) development of cartilage preceding formation of bone; (b) direct formation of bone. The experiments did not show whether the new bone arises from the periosteum or from the remaining bone stumps. 2. In three instances in which large bone pieces were left behind the amount of regeneration was very limited, and only in one case was the regeneration marked. 3. The periosteum alone did not regenerate bone. 4. The regeneration of bone occurred always from the point where the bone and periosteum diverged, and in general the amount of regeneration was directly proportional to the duration of the experiment. 5. There is marked increase of bone production in the presence of blood-clot. 6. It is possible that the new bone may have formed in the region of the blood-clot, and that subsequently it may have extended toward the costal cartilage, but this could not be definitely established. 7 and 8. Periosteum in the presence of blood-clot has the power of regenerating bone. 9. In the absence of blood-clot there was no evidence of regeneration of bone. 10. No evidence of new bone was found within the tube; on the contrary, there was definite evidence of necrosis of the enclosed bone. The most striking feature of the experiments is the influence of blood-clot in stimulating the formation of new bone. Another interesting feature of these experiments was the absence of the regeneration of bone from pre-existing bone which had been separated from its periosteum.

Haas summarizes his paper as follows:

> In cases in which the rib was isolated from its periosteal bed there was never any evidence of proliferation from the denuded bone. In fact, in the majority of cases the raised ribs became atrophic. In cases in which the severed ends of the denuded ribs were inserted between muscle fasciculi there was never any evidence of regeneration and where fractures were produced in the periosteum-free bone no evidence of union was found. These results are of considerable interest in view of the findings of Macewen, and further experiments are necessary to show whether the ribs differ from the long bones of the extremities in this respect. The constant occurrence of new bone at the angle of separation between the elevated rib and the periosteum raises the question of the relative importance of periosteum and bone in the regenerative process. If one assumes that the newly formed bone arises from the pre-existing bone, one would expect that the new bone should extend along the raised rib as well as in the periosteal gutter. The experiments do not show this to be the case. Although the new bone was always formed at the angle between the rib and the periosteum, it extended only along the periosteal gutter. It cannot be denied that the bone may have had some influence in originating the regenerative processes, but it is significant that the regeneration occurred only where periosteum was also present, and one cannot but conclude that the periosteum must have acted in some other way than by merely passively directing the distribution of new bone. It may be that the periosteum possesses some power, possibly of a chemotactic nature, which determines the direction in which the new bone shall grow, but from these experiments there seems little doubt that it also plays some important part in the actual regenerative process. In several experiments where the chondrocostal junction was removed it was noted that new bone was formed near the site of the junction. In practically all cases there was also regeneration of cartilage, and in some cases the new cartilage and the new bone were continuous. In the cases in which the new bone was separated from the cartilage it is difficult to explain its presence unless it arose from the periosteum. It is possible that the dependent position of this region when the animal is moving around may have caused the accumulation of blood-clot in this area, and that the combined action of the periosteum and blood-clot was responsible for the formation of the new bone.

139. **Gastro-Enterostomy.**—The authors hold that gastro-enterostomy, if properly done, is a drainage operation. After gastro-enterostomy, if the stoma is at the lowest part of the stomach in the erect position, the food leaves the stomach almost exclusively by the gastro-enterostomy opening. Under these conditions the stomach is emptied with great rapidity. They claim that gastro-enterostomy should be done only in the presence of pyloric stenosis, or pyloric spasm due to duodenal or gastric ulcer. The gastro-enterostomy opening should be made large and placed as close as is permissible to the pyloric antrum. In cases in which the gastro-enterostomy opening does not quite drain the stomach, the food leaves both by means of the stoma and the pylorus. Even in these cases, however, the stomach empties itself faster than normal. The authors believe that the clinical failures after gastro-enterostomy are probably due to the cases of faulty implantation of the stoma.

144. Abstracted in THE JOURNAL, January 11, p. 150.

148. **Influence of Thyroids on Pregnancy.**—Thompson experimented on pregnant bitches with the object of ascertaining the effect of disturbances of the thyroid apparatus during the height of sexual activity. In all, nine dogs were operated on. In five dogs one lobe of the thyroid was removed. In two one lobe was removed and the remaining thyroid tissue badly bruised and ligated and in one both lobes and some parathyroid were removed. In one both lobes were removed; and one lobe and the hypertrophied thyroid were removed from another dog and implanted in the site of the excised gland. Dogs in which one lobe of the thyroid was removed with no accidents gave birth to normal puppies and had abundant milk. The dog which had a severe hemorrhage during the operation, in the control of which there was sufficient injury to the remaining thyroid and parathyroids, equivalent to a ligation of the artery, had one puppy born dead and succumbed herself. One dog in which double thyroidectomy was performed together with the removal of some of the parathyroid tissue, had symptoms of tetany; gave birth to five living puppies, but appeared to have no milk, and the dog and puppies all died in a few days. The dog on which a transplantation was done escaped. The removal of one thyroid lobe has comparatively little influence on pregnant dogs or their pups after birth, but the removal of one-half, with injuries sufficient to destroy the function of the remaining thyroid and parathyroid tissues, is followed by tetanic seizures and death of mother and puppies. The total removal of the thyroids, with some parathyroid tissue, is followed by trembling, rigidity and after the birth of the puppies the milk was scanty, and later the mother and puppies succumbed.

Thompson concludes, therefore, that the thyroid gland, situated as it is in the neck, should have any sympathy with sexual functions if it was originally a gland concerned with digestion, is, to say the least of it, extremely unlikely; but on the contrary likely enough if it originated from a glandular organ in connection with the sexual structures of the paleostracean ancestors. There is clinical and experimental evidence

of its connection with the sexual system of man and higher mammals through its secretion, in that a lack of thyroid secretion influences sexual activity adversely; that sexual activity, whether it be physiologic or pathologic, causes a hyperactivity of the thyroids, and that this hyperthyroidism constitutes an index to the toxemia of pregnancy to counteract which the thyroids raise their antitoxic protective power. There is abundant clinical evidence in support of the theory that what is termed a physiologic hyperactivity of the thyroid is a valuable safeguard against the toxemia of pregnancy.

150. **Gastrostomy Suggestion.**—When the catheter is introduced into the stomach in any method, McGuire passes it immediately through the pylorus into the duodenum. This procedure enables one to proceed with feeding at once, without fear of tension on the stomach sutures. The catheter is borne well by the duodenum, as McGuire has never seen any irritation due to it. In the course of three or four days the catheter is withdrawn into the stomach, the exact point of the catheter being previously marked. The advantages of this method in desperate cases are self-evident. It not only offers a safe method for the immediate introduction of food, but also insures a certain and definite means of introducing salt solution or tap water into the circulation. It offers the same advantages to gastrostomy operations that McArthur's procedure gives to surgery of the biliary passages.

153. **Anesthetometer.**—The anesthetometer devised by Connell is an apparatus for the automatic measuring and mixing of vapors and gases used to maintain anesthesia and for other purposes. The apparatus consists, first, of a gas meter as the measuring and motive mechanism; combined with, second, an ether reservoir from which volatile liquid is fed in accurately adjustable amounts; into, third, a vaporizing chamber; which is combined, fourth, with a trip-valve by which gases in any quantity may be mixed in accurate percentage. By the use of this apparatus, that accuracy of dosage in the administration of gaseous drugs so long deemed necessary for liquids and solids is secured. By the use of the anesthetometer, particularly in the intratracheal and intrapharyngeal delivery, the dosage of gaseous anesthetics becomes automatic, yet under the continuous observation and control of the operator. Thus efficiency and safety in prolonged anesthesia are secured, and the shock and sequelae of ether anesthesia are largely eliminated.

Wisconsin Medical Journal, Milwaukee

August, XII, No. 3, pp. 63-94

155 Protection of Eyes of Schoolchildren. N. M. Black and F. A. Vaughn, Milwaukee.
156 *Auscultatory Blood-Pressure Phenomenon. L. M. Warfield, Milwaukee.
157 Fever, with Obscure or Absent Physical Findings. E. Evans, La Crosse.
158 Tuberculosis Column. M. P. Ravenel, G. E. Seeman and Others, Milwaukee.

156. Abstracted in THE JOURNAL, June 22, 1912, p. 1970.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

August 2, XXXIV, No. 5, pp. 95-118

1 Acid-Fast Bacillus from Case of Ulcerated Throat, Resembling in Its Morphology, when Stained by Neisser's Method, the Klebs Loeffler Bacillus. C. H. Shearman.
2 Fatalities due to Present Unrestricted Sale of Dangerous Drugs in Tablet Form. L. W. Bickle.
3 Typhoid Epidemic. B. Foulds.

August 9, No. 6, pp. 119-142

4 Uterine Fibroids and Pregnancy. W. Trethowan.
5 Case in Which Vaginal Cesarean Section Was Performed. W. J. S. McKay.
6 Two Cases of Uterine Myomas Complicating Pregnancy. W. T. Chenhall.

August 16, No. 7, pp. 143-166

7 Present Small-Pox Epidemic in Sydney. W. G. Armstrong.
8 Vaccination and Immunity. D. A. Welsh.
9 Immunity in Relation to Small-Pox. H. G. Chapman.
10 Acute Abdominal Pain and Vaccination. P. L. Hipsley.

August 23, No. 8, pp. 167-190

11 Some Cases of Injury to Lens and of Foreign Body in Eye. J. L. Gibson.
12 Romance of Medicine: Specialized Knowledge of Hippocratic School. J. W. B. Bean.
13 Recent Advances in Surgical Treatment of Gastro-Intestinal Stasis due to Ptosis of Different Parts of Alimentary Canal. T. J. B. Kelly.

British Journal of Children's Diseases, London

September, X, No. 117, pp. 385-432

14 *Bacillus Coli Infection of Urinary Tract in Infancy and Childhood. N. P. Marsh.
15 Fatal Cases of Eczema in Children. P. S. Hichens.
16 *Appendicitis in Children. G. C. E. Simpson.
17 Diphtheria of Esophagus. J. D. Rolleston.
18 Case of Hyperactivity of Anterior Lobe Combined with Deficient Action of Posterior Lobe. E. C. Williams.

14. **Colon Infection of Urinary Tract.**—Pyelitis and cystitis, Marsh claims, are much more common in infancy and early childhood than is generally supposed. Mysterious febrile attacks, especially in females, should therefore not be attributed to dentition or gastro-intestinal indigestion until a careful examination of the urine for pus-cells and organisms has been made. The infection may be an ascending one owing to direct infection with feces through the urethra, or it may be a descending one owing to direct passage of the organisms from the bowel to the kidney; or lastly, and in rare cases, the infection may be carried by the blood-stream. The most satisfactory treatment is that by alkalies. The best drug for this purpose, Marsh finds, is the citrate of potash, which must be given in doses varying from 5 to 20 gr. every three or four hours. The urine generally becomes alkaline in one to three days, after which, as a rule, the temperature quickly falls, the symptoms subside, and the pus-cells and organisms rapidly diminish in number. If digestion is disturbed or diarrhea is set up by the citrate of potash, the alkalinity may be maintained by 5 to 10 gr. of bicarbonate of sodium or potassium given every two or three hours. Marsh has found citrate of soda added to the infant's bottle equally valuable under these circumstances. In cases which do not respond to this method, urinary antiseptics, after first rendering the urine acid, or autogenous vaccines should be tried. In spite of all treatment many cases became chronic; in these, acute exacerbations alternate with long periods of quiescence, but the urine never becomes entirely free from pus-cells and organisms.

16. **Appendicitis in Children.**—In view of the frequency—the increasing frequency and severity—of appendicitis in children, Simpson says, we should lose no opportunity of impressing on the public the possible severity of abdominal pain in a child. And he urges on the profession the advisability of early operation. Temporizing, waiting for an interval, or for more definite signs to develop, may be attended by most serious consequences. Early operation is the treatment of appendicitis in adults; it is even more important in children, in whom fewer cases remain localized to the appendix itself, in whom there is less tendency for adhesions to form, less chance of a localized abscess, and the disease runs a more rapid and severe course. In all stages of acute appendicitis in children operation should follow immediately on diagnosis; the signs and symptoms may be slight, with very serious conditions in the abdomen, and only surgeons with a very wide experience may, in rare cases, be justified in waiting for convalescence before performing their operation.

British Medical Journal, London

September 6, II, No. 2749, pp. 585-640

19 Educational Number, Sessions 1913-1914.

Edinburgh Medical Journal

September, XI, No. 3, pp. 193-288

20 Study of Bitemporal Hemiopia. H. M. Traquair.
21 *Antemortem Thrombosis in Right Heart and Pulmonary Arteries as Cause of Death in Lobar Pneumonia. R. A. Fleming.
22 *Duodenal Diverticula and Duplicature of Duodenal Wall: Report of Three Cases. D. P. D. Wilkie.
23 *Some Rare Uterine New Growths—Simple Papilloma of Corpus Uteri, Primary Tubercle of Cervix, Diffuse Nodular Fibrosis. F. W. N. Haultain.

24 Conduction Defects in Heart. G. D. Mathewson.
25 *Obstruction of Intestines. J. C. Renton.
26 Appliance for Extension of Limb in Operative Treatment of Fractures. C. W. Cathcart.
27 Medicine and Poetic Muse. J. Young.

21. **Antemortem Thrombosis.**—If there is a danger of cardiac and pulmonary thrombosis, then stimulation, particularly of the heart, Fleming points out, would be the routine treatment for all cases in which such thrombosis may be expected to occur. Every case of croupous pneumonia should be treated early, and Fleming believes continuously, by the administration of a direct cardiac tonic, such as digitalis or strophanthus. Such diffusible stimulants as spirit of chloroform and aromatic spirit of ammonia should be given at once if the heart shows any signs of difficulty. Oxygen may counteract the excess of CO_2, which, according to Wiener and others, aids clotting. Fleming deems that it might be wise to depart from the usual plan of preventing any change of posture of the patient in bed. In fact, altering the position of the patient may be actually beneficial. The use of antithrombin ferment, he says, would be ideal, but at present it is not within the scope of practical therapeutics. Citric acid in 30- to 60-grain doses, four hourly, has been much commended in cases of venous thrombosis. If convinced that antemortem clotting is a cause of death in pneumonia, bleeding should never be performed unless in particularly robust patients, and never for what looks like engorgement of a dilated right heart. It may only aid thrombosis which has already begun. Auscultation of the pulmonary area should in any case be first carefully carried out.

22. **Duodenal Diverticula.**—The first of Wilkie's three cases is of interest in that a large duodenal diverticulum with an accessory pancreas in its wall occurred along with the curious condition of duplicature of the duodenal wall. In the other two cases—typical "diverticules perivateriens"—there was no evidence of pancreatic tissue in the walls of the diverticula, nor, on the other hand, was there any sign of distention or dilation of the duodenum. In two of these cases the presence in each of a diverticulum in close anatomic contiguity with the common bile duct, together with the signs of stasis in that duct, without there being any intrinsic obstruction of its lumen, offered strong presumptive evidence that there was some such etiologic relationship. It is possible that in both cases the stagnation of duodenal content in the diverticula led to a chronic catarrh of the duodenum, and that swelling of the papilla accounted in part for the biliary stasis which existed. Wilkie believes that diverticula of the second and third parts of the duodenum are of congenital origin. In the first part of the duodenum three types of diverticula are met with, the congenital, the ulcer diverticulum, and the acquired wide-mouthed diverticulum of the duodenal vestibule. Congenital duplicature of the duodenal wall may occur either along with or independently of diverticula; it is probably due to the persistence of a condition normally found at an early period of fetal life, and is, in fact, but a mild degree of that arrest of development which in its most pronounced form is met with in cases of congenital atresia of the duodenum.

23. **Rare Uterine New Growths.**—Haultain cites three cases: (1) simple papilloma of corpus uteri, (2) primary tubercle of cervix, (3) diffuse nodular fibrosis.

25. **Obstruction of Intestines.**—In Renton's last thirty-three cases of acute intestinal obstruction due to various causes there have been three deaths. There were five patients ill with intussusception and they all recovered. The important points which Renton urges should be remembered in connection with obstruction of the bowels, are: 1. Early diagnosis and early operation. 2. Where the obstruction is very acute, drainage by Paul's tube or other method. 3. The great importance of continuing drainage until the patient has sufficiently recovered to bear an operation, which may take three-quarters of an hour.

Glasgow Medical Journal

September, LXXX, No. 3, pp. 161-239

28 *Operation for Acute Appendicitis—Primary Closure of Abdominal Wound. J. G. Andrew.
29 Intestinal Toxemia in Its Relationship to Obstetric and Gynecologic Affections. A. L. M'Ilroy.
30 Miners' Nystagmus: Stage Prior to Nystagmus. W. B. Pollock.
31 Roentgen-Rays in Malignant Disease. W. F. Somerville.
32 Differential Diagnosis of Manic-Depressive Insanity and Dementia Praecox. R. M. Marshall.

28. **Operation for Acute Appendicitis.**—Andrew maintains that drainage in cases of gangrene and of abscess is not necessary and often dangerous. Drainage can be dispensed with if the following two conditions are fulfilled: (a) removal of the cause, (b) thorough closure of the cecal opening. If these conditions are fulfilled, then Andrew says it is possible to obtain primary union where the very worst possible intra-abdominal conditions prevail, and with less risk than if drainage were adopted either by tube or by packing. Andrew analyzes his eighty-five cases so treated. In the greater proportion of the cases the appendix was gangrenous, either in whole or in part, and quite unprotected by adhesions from the general peritoneal cavity. In no less than one-third of the cases the appendix had perforated, and a coprolith was either lying free in the general peritoneal cavity or in process of extrusion. The accompanying peritonitis was either local or general; it was quite impossible in some of the cases to be certain how far the infection had spread. Though not stated in the summary of the cases, if any doubt existed as to the involvement of the pelvic peritoneum a small suprapubic incision was made, and the pouch of Douglas mopped out. In a smaller proportion of the cases a localized abscess was present, completely shut off and usually very foul-smelling. In almost every case the offending appendix was removed, and every care taken to effectively close the cecal attachment. Iodoform powder was dusted over the stump in the earlier cases; iodin or iodoform emulsion, either alone or combined with the subcutaneous injection of a bacillus coli vaccine, in the later cases.

In eighty out of the eighty-five cases the wound was primarily closed without drainage. The cases drained were those in which the appendix could not be found or those in which the stump could not be effectively closed. The subsequent introduction of an intra-abdominal drain at the seat of the appendix was necessary in only two cases, and in these Andrew was in doubt as to the satisfactory closure of the stump. Fifty-seven out of the eighty-five cases healed primarily. In twenty-seven there was some infection of the wound; in two the wound was restitched. In no case was a drainage tube necessary for the wound alone. In three of the patients who died the wound had healed or was in process of healing without sepsis, and that with a pronounced peritonitis in progress. There were seven deaths. In one case death occurred six hours after admission; this case was drained. In every case save one death was due to general peritonitis, either in existence at the time of the operation or becoming general subsequent to operation.

Indian Medical Gazette, Calcutta

August, XLVIII, No. 8, pp. 293-336

33 Gleanings from Calcutta Post-Mortem Records: Diseases of Nervous System. L. Rogers.
34 Some Signs of Typhoid and Its Treatment. P. K. Chitale.
35 Salvarsan on Tea Estates. J. A. Valentine.
36 Psychology of Anus. O. B. Hill.
37 Etiology of Malaria in Bengal. S. Sen.
38 *Rare and Probably Undescribed Residual Eruption in Small-Pox. L. G. Fink.
39 Sterilized Pus for Treatment of Infections and Sterilized Cancer Inoculations. V. B. Nesfield.
40 Case of Serum Therapeutics. M. Ram.

38. **Residual Eruption in Small-Pox.**—On April 28, Fink's patient, a male, aged 22, was for an hour in the house of a person in the scaling stage of the disease. On May 20, he had a temperature of 104.6 F. He was kept under observation the next day, and on May 22, he was admitted and segregated, as eruptions appeared on his face, forearms and body. He stated that he had had fever, backache and pains in his joints from May 18, but had not reported feeling ill. He had two fair-sized vaccination scars on his left arm; said to have been vaccinated fourteen years previously, when he was 8 years old. He had not had small-pox before and had never been inoculated. He had also not been revaccinated till four days after his admission, but this was not successful. He was then

in the incubation stage of small-pox. Eruptions first appeared on the night of May 21, but these were not seen till the following morning and the question of diagnosis, small-pox or chicken-pox had to be decided. As twenty-one days appeared to be a very long incubation period for small-pox, the further development of the eruptions was carefully watched.

The following are the principal points noted: The vesicles developed slowly as in small-pox and scabs began to form on the face first on the tenth day. The majority of the vesicles were globular, but some were irregular in shape. They were closer set on the face than on the body; closer on the forearms than on the arms; closer on the legs than on the thighs; closer on the back than on the front of the body; closer on the upper than on the lower part of the back; they were more numerous on the extensor than on the flexor surface of the extremities; they were well-developed on the hands and feet and formed well-marked "seeds" in the palms and soles. The majority of the vesicles showed no umbilication and appeared superficial. On pricking some collapsed and others did not. Secondary fever occurred when the stage of pustulation began. The slow development of the eruptions, their appearance first on face and forearms, their density in the areas above-mentioned, secondary fever, and the presence of "seeds" in the palms and soles left no doubt as to the disease being small-pox.

On September 21, two and a half months after he was convalescent, he had an attack of fever, but the temperature was not recorded. The following morning papules appeared and some of these developed into vesicles. A few of these vesicles became pustular and scabs formed. The lesions were in every respect similar to those of a mild case of chicken-pox or modified small-pox. The patient had not been in contact with any person suffering from either of these diseases. The eruptions were most numerous on the back and chest, and there were a few on the face and extremities. They were all very superficial and the scabs were thin. On examining the hands two "seeds" were found on the palmar aspect of the left hand, and one, resembling the "dark, black area" described by Cameron and really a vesicular "seed," on the right middle finger. Shortly after the eruptions appeared, the glands in the axillae and in the femoral region were swollen to the size of a pigeon's egg. The scabs had all fallen off by October 4, and the patient was practically well. No secondary fever occurred with the residual eruptions.

Journal of Tropical Medicine and Hygiene, London

August 15, XVI, No. 16, pp. 241-256

41 Clinical Study of Malarial Fever in Panama. J. P. Bates.
42 New Flagellate, *Crithidia Hyalommae*, Sp. Nov. Found in Tick *Hyalomma Aegyptium* (Linnaeus, 1758). W. R. O'Farrell.

Lancet, London

September 6, II, No. 4697, pp. 707-782

43 Present Position of Postgraduate Medical Education in United Kingdom. C. O. Hawthorne.
44 Pain and Sleeplessness. R. Jones.
45 Pellagra in England. G. S. Blandy.
46 Case of Pellagra. J. W. E. Cole.
47 Effects of Ductless Glands on Development. H. Gilford.
48 Military Experiences of Traumatic Aneurysms. B. Soubbotitch.
49 Value of Anoci-Association (Crile). J. H. Chaldecott and C. W. G. Bryan.

Practitioner, London

September, XCI, No. 3, pp. 301-444

50 Treatment of Anemia. W. H. Willcox.
51 *Gynecologic Emergencies. R. D. Maxwell.
52 *Some Pelvic Disorders in Relation to Neurasthenia. C. Oldfield.
53 Intestinal Obstruction. J. E. Adams.
54 Recent Literature on Typhoid. C. B. Ker.
55 Literature on Public Health. J. Priestley.
56 Treatment of Phthisis by Intensive Nascent Iodin Administration. E. G. Reeve.
57 "Rest" Treatment of Pulmonary Tuberculosis. H. Coppock.
58 Pathology of Migraine. J. R. Charles.
59 Calcareous Deposits in Blood-Vessels. W. F. Somerville.
60 Cotton-Seed Extract and Pituitary Extract during Lactation. J. A. H. White.
61 Acute Abdomen on Board Ship. G. Shaw.
62 Tabes with Unusual Distribution of Deep-Pain Loss. T. A. Williams.
63 Case of Rat-Bite Disease. F. Nicholson.

51. **Gynecologic Emergencies.**—Maxwell's paper is limited to the consideration of three affections, which all have this one factor in common—the sudden supervention of acute abdominal symptoms in a woman of apparently normal health. These are: (1) ectopic gestation in its numerous forms; (2) twisting, and the secondary changes dependent thereon, of ovarian cysts. In the first, the difficulty of diagnosis, at least in acute rupture of the tube, is much less than in the other two; (3) "ascending inflammations" of the pelvic peritoneum, to which the female abdomen is specially predisposed by virtue of the open celomic ostium.

52. **Pelvic Disorders and Neurasthenia.**—In 98 prolapse cases operated on by Oldfield prior to March, 1911, and investigated after October, 1911, there were 2 complete recurrences, 3 partial, 3 with symptoms unexplained by physical signs, and no case of neurasthenia; 143 fibroids with 3 patients who had neurasthenic symptoms; 2 of them soon recovered, and the other was a confirmed neurasthenic, and now has mental symptoms; 15 other patients had some symptoms, of whom 2 had renal calculus, 1 had hydronephrosis, 2 developed acute appendicitis, and 2 had gonorrhea. With appropriate treatment, all these patients have done well with the exception of one with renal calculus, who still has some renal pain with pyuria. In 104 major operations in connection with pregnancy, consisting of extra-uterine gestation, classical and vaginal cesarean section extra-uterine gestation, classical and vaginal cesarean sections, tumors with pregnancy, acute appendix and gall-bladder lesions, only one neurasthenic case was found, and it appears that domestic unhappiness accounts for this case. Since reporting these results Oldfield has performed nearly 200 more prolapse operations and forty-five more hysterectomies for fibroid tumor; although these cases have not been followed up, as far as one knows not a single patient has neurasthenia. There were five deaths in 345 operations reported in the three papers referred to, and in the subsequent 240 cases not a single death occurred. Oldfield holds that pelvic disorders have no specific action in causing neurasthenia. Pelvic complaints, with the exception of disorders of menstruation, are as often as not unassociated with physical signs, and due to a general neurasthenia. Certain conditions, such as slight exposure of vaginal wall, cervical erosion, laceration, retroflexion of uterus, prolapsed ovary, ovaritis and cystic ovary, do not produce symptoms, and do not require treatment. Chronic pelvic inflammation, calling for operative treatment, sometimes exists apart from recognizable tumor formation. Greater care is necessary before, during and especially after, operation, in order to prevent postoperative neurasthenia. Before operating on neurasthenics with gross disease, and before operating on patients without demonstrable physical signs, Oldfield says, the surgeon should seek the advice of the physician.

Journal de Médecine de Bordeaux

August 24, LXXXIV, No. 34, pp. 543-556

64 The Clinical Forms of Chronic Tuberculosis in Infants. R. Cruchet.

Lyon Médical, Lyons

August 24, XLV, No. 34, pp. 297-328

65 The Phenolsulphonephthalein Test of Renal Function. G. Mouriquand.
66 *Atrophy of the Uterus as Result of Lactation. (Maladie de Basedow et maladie de Frommel.) Maurice.

66. **Atrophy of the Uterus as Result of Lactation.**—Frommel in 1882 published an article in which he said that as a result of lactation the uterus frequently undergoes such an extreme degree of involution that it cannot afterward be restored to normal size. He recommended that the genital organs be examined frequently during lactation and if excessive decrease in size of the uterus be observed that nursing be stopped. Maurice reports a case of excessive secretion of milk in a young woman while nursing her first baby. It was followed by uterine atrophy, so that she never had another pregnancy. During lactation swelling of the thyroid and marked symptoms of hyperthyroidism had been noted. It is known that utero-ovarian atrophy frequently occurs in association with

exophthalmic goiter, and Maurice concludes that there is a physiologic antagonism between certain glands which stimulate the cortex and vagus (such as the ovaries and pancreas), and others which excite the sympathetic system (such as the thyroid and mammary gland). Hence nervous women who show that their sympathetic nervous system is especially sensitive should be supervised with particular care during the nursing period.

Presse Médicale, Paris

August 27, XXI, No. 70, pp. 705-712

67 Cytolysis. (Phénomènes de cytolyse.) L. Bory.
68 *Nodose Erythema. (Valeur séméiologique de l'érythème noueux.) Aubert.

August 30, No. 71, pp. 713-720

69 Relation between Appendicitis and Diverticulitis. M. Guibé.

68. **Nodose Erythema.**—Aubert warns that this variety of multiform erythema calls for a diagnostic tuberculin test as it is so often a manifestation of the earliest phase of infection with the tubercle bacilli. It is far wiser and safer to let the family know at once that the trouble is constitutional and not a mere transient skin disease. Telling the family that the trouble is a bacillosis sounds the alarm and gains consent to appropriate measures. Otherwise treatment is restricted to local applications or less. He reports four cases to show the necessity and extreme advantage of treatment on the basis of this conception of "pretuberculosis." He adds that the text-books should cease to class erythema nodosum as a separate morbid entity.

Revue de Médecine, Paris

August, XXXIII, No. 8, pp. 601-671

70 Diabetes Mellitus and Acetonemia. (Progrès de nos connaissances sur la pathogénie et le traitement du diabète sucré et de l'acétonémie.) R. Lépine.
71 Anastomoses between the Greater and Lesser Circulation in Normal and Diseased Conditions. C. Trunecek.
72 Asthenic Form of General Paralysis; Four Cases. R. Benon and H. Cier.
73 Manifestations of the Psychasthenic Diathesis. S. Lubetzki.
74 *Hematuria Caused by Urotropin given in Typhoid Fever. (L'hématurie au cours de la fièvre typhoïde traité par l'urotropine.) J. Belkowski.

74. **Hematuria Caused by Hexamethylenamin.**—Hematuria from this cause is a comparatively rare occurrence. In 1906 Karkowski could find only five cases in the literature. Crowe in 1912 reported seven cases among ninety-five patients treated. Belkowski has encountered four cases and reports in detail one which occurred in a fatal case of typhoid. The changes found at necropsy were confined to the bladder, the kidneys not being affected. Hematuria is more apt to occur in cases with very high temperature, as this favors the decomposition of the hexamethylenamin into formaldehyd and ammonia. These four cases occurred among forty typhoid patients who were given doses of 0.5 or 0.6 gm. three to four times a day. The hematuria did not seem in any case to influence the typhoid unfavorably and it stopped when the hexamethylenamin (urotropin) was discontinued.

Revue Médicale de la Suisse Romande, Geneva

August, XXXIII, No. 8, pp. 577-660

75 *Emotion as a Factor in Mental Disease. (Le rôle de l'émotion dans la genèse des psychopathies.) P. Dubois.
76 Neuritis Following Prolonged Exposure to Cold. (Névrites tronculaires multiples et graves, des membres supérieurs consécutives à un refroidissement prolongé.) E. Long and M. Roch.
77 Hemorrhagic Myeloid Leukemia; Six Cases. H. Ter-Barseguian. Commenced in No. 7.
78 The Test for Urochromogen in the Urine. (La réaction de Moriz Weisz dans les urines.) E. Cottin.
79 Heating the Ether for General Anesthesia. (La narcose à l'éther chauffé.) C. Julliard.

75. **Emotions, Psychanalysis and Psychotherapy.**—Dubois here describes his conception of the causes of psychopathies, the *théorie intellectualiste* which for years he has been teaching. He reiterates that every sentiment is an emotion; every sentiment generates at once a tendency to motion, toward or away from, and this reaction of attraction or repulsion is the primary phenomenon of life—the instinct of self-preservation. Whether the individual is conscious of it or not, the process is always the same. There is first perception of the stimulus, then the brain passes logical judgment on the stimulus and it is only after the stimulus has been thus weighed and judged that the emotion follows, bringing with it the action. Dubois insists that logic is a single and absolute rule which every one obeys, everyone without exception. The mind works like an adding machine that always gives the same sum, given the same figures to add. This logic of the human mind is impeccable in old and young, great and small, unless the brain is profoundly diseased. But the premises on which the logical conclusion is based differ for all, and these premises are the result of multitudes of conscious and rudimentary ideas inherited or imprinted by education. The premises depend on our capacity for estimating things in their true proportions. The inability to estimate events at their true value entails a morbid judgment, and this is the cause of the exaggerated emotivity of psychopathic patients. Rational educative psychotherapy and prophylaxis aim to train them to formulate their premises more correctly; with correct premises comes sound judgment.

The psychopath regards minor happenings and reacts to them as the normal regard and react only to serious tragic events. The emotional crisis is an actual orgasm which sets a whole series of organic apparatus at work; this activity entails fatigue—and emotional fatigue, Dubois adds, is about the most pernicious. The fatigue brings with it a number of disagreeable sensations which fix anew the worried attention of the patient. The physiologic disturbances caused by the psychopathic exaggerated reaction, gastro-intestinal disorders, tachycardia, neuralgia, headache or the like, add a new source of emotions to the original one, and the original phobia is followed by phobophobia. There is besides this the physiologic law that repetition occurs more easily each time. It is not necessary to dig into the past for a sexual trauma, as Freud does; the obvious cause will generally suffice for effectual psychotherapy, convincing the patient that his premises are erroneous. Then the whole structure of his phobia falls to pieces and he is cured. A frequent phobia Dubois has encountered is the dread of microbes; most of these patients have never seen microbes under the microscope and have no idea of their actual size. One of his patients had a phobia that his tailor had sewed tubercle bacilli in with the silk in making buttonholes. The simple dread of contagion or an exaggerated idea of the toxicity of certain poisons explains many such cases without search for an erotic factor.

The psychasthenic imagine absurd things and they sometimes know this. Treatment aims to prove to them that it is their emotional state which impairs their logic. This tranquilizes them as they realize that they will estimate things at their true value better when their emotion has quieted down. He gives a number of concrete examples to illustrate these views.

Semaine Médicale, Paris

September 3, XXXIII, No. 36, pp. 421-452

80 *Duodenal Ulcer in Children. L. Cheinisse.

80. **Duodenal Ulcer in Children.**—Bichat and Imfeld have reported a successful operative case of duodenal ulcer in a girl of 14 and a boy of 15, and Cheinisse states that duodenal ulcers have been found at necropsy of very young children, even infants. Helmholz and Schmidt have reported finding evidences of healed ulcers at necropsy of children who had died from other causes. In Schmidt's case the child was only five weeks old. In Bichat's case an interval of twenty-four hours had elapsed between the perforation of the duodenal ulcer and the operation and yet the child recovered.

Berliner klinische Wochenschrift

August 25, L, No. 34, pp. 1553-1596

81 *Treatment of Syphilis. F. Bering.
82 Antibodies Derived from Without. (Ueber heterogenetische Antikörper.) E. Friedberger and F. Schiff.
83 *Electric Treatment of Obesity. (Elektrotherapie gegen Fettleibigkeit.) V. Carulla.

84 *Thrombosis in Measles. (Ueber Thrombenbildung bei Masern, mit bes. Beteiligung der Lungenarterien.) W. Lutz.
85 Operative Treatment of Neck of Bladder and Posterior Urethra. (Zur operativen Behandlung der Erkrankungen des Blasenhalses und der hinteren Harnröhre.) E. Wossidlo.
86 *Pathology of Spleen Functioning. I. (Zur Pathologie der Milzfunktion.) H. Eppinger. Commenced in No. 33.
87 By-Effects of Salvarsan. (Ueber Salvarsanstörungen.) W. Gennerich.

81. **Treatment of Syphilis.**—Bering insists that every physician who has anything to do with the treatment of syphilis should familiarize himself with the technic for detecting the spirochetes so that he can seek for them at once without waiting for symptoms to develop. Another point on which he lays great stress is that local treatment of primary lesions and skin and mucous membrane lesions should never be omitted; they should be cut out when possible. If excision is not practicable, he injects a 1 per cent. solution of mercuric chlorid, applies the thermocautery and dusts afterward for a long time with calomel. Otherwise the spirochetes are liable to lurk for years in or around these lesions. In one of his cases a woman was infected by her husband ten years after his primary chancre. The Wassermann reaction is more likely to be positive when the syphilitic manifestations are numerous and extensive; with monosymptomatic syphilis it was positive only in 37 per cent. of his cases. He is convinced that even reinfection is no guarantee that all the spirochetes from the primary infection have been exterminated.

The cerebrospinal fluid findings in 285 cases are listed to illustrate the remarkable frequency of changes in the fluid in all stages of syphilis, even the very earliest, possibly while the blood-Wassermann is still negative. Besides its diagnostic value, lumbar puncture often has a decided therapeutic influence on headache and other signs of abnormal pressure on the brain. He regards salvarsan as superior to mercury in the primary stage, but three or four repetitions of a dose of 0.3 or 0.4 gm. are necessary. He warns against ever going above this dose; in later stages he prefers 0.1 or 0.2 gm., repeated eight or ten times. The older the syphilis the less effectual is salvarsan, and mercury is superior to it in the secondary and third stages; he combines the two but pushes the mercury. Inadequate treatment does actual harm, merely rousing the spirochetes without exterminating them. The discovery of the spirochete is by far the greatest progress realized in the matter of syphilis to date, he declares. This enables us to differentiate the disease when it has just got a foothold and root it out at once.

83. **Electric Treatment of Obesity.**—Carulla reports a case in which he applied Bergonié's method and reduced the weight of the patient, a man of 40, from 174 to 108 kilograms, a reduction of over 145 pounds. The method is based on the muscular contraction that follows an electric discharge, and Bergonié has evolved a technic which permits such extensive and repeated contractions of different groups of muscles that the muscles get a maximum of exercise with the minimum of fatigue, thus providing ideal conditions for correcting the tendency to obesity. He uses the secondary current from an induction coil with a tension of 8 or 10 volts, the current interrupted by a metronome with a beat of 120 to the minute. This current is brought to the body through electrodes which cover large parts of the body. They are kept moist, and are held in contact with the body by means of bags of sand. The current of 40 up to 100 milliamperes is applied at first for fifteen or twenty minutes once or twice a day and later for fifty or sixty minutes each time. After four or six weeks the treatment is suspended for six months and then the course is repeated. During the interval the patient generally loses 20 or 30 pounds, and during the second course loses still more, so that the weight is usually reduced on the whole from 60 to 88 pounds and the tendency to obesity seems to be permanently conquered; of course the electric treatment has to be aided by rational dieting. Carulla's patient had an electric apparatus installed in his home for the purpose. The galvano-faradic current was applied through two large metal electrodes covering most of the abdomen and held in place with elastic bands. The galvanic current was reduced after a time and the faradic increased and varied during the nine months of the courses and intervals. There has been no tendency to an increase in weight during the three months since the close of the courses although the patient does not restrict his diet.

84. **Thrombosis in Measles.**—Lutz states that in eight of a recent series of twenty-two fatal cases of measles extensive thrombosis was found at necropsy; the pulmonary arteries were particularly involved in six and in two also the cerebral arteries. In five cases the veins or right ventricle was also involved, in one the portal and mesenteric and in one the portal vein and sinuses in the brain. He has been able to find only eleven other cases on record of thrombosis in measles.

86. **Splenectomy in Pernicious Anemia and Other Blood Diseases.**—Eppinger concludes from his experience with splenectomy in ten cases that it is liable to have a curative action whenever there is destruction of the blood from any cause. Not only in hemolytic jaundice but also in pernicious anemia, benefit may be derived from splenectomy. He performed the operation in two cases of hemolytic jaundice; in two of pernicious anemia; in three of Banti's disease; in two of cirrhosis of the liver and in one of severe catarrhal jaundice threatening transition into acute yellow atrophy of the liver. The result in the hemolytic jaundice and pernicious anemia cases was surprisingly good; the urobilin in the stool dropped from 3.95 before to 0.62 a week later in one of the former cases and from 0.65 to mere traces in one of the pernicious anemia cases, while the reds increased from 1,160,000 to 4,900,000 in six weeks and the weight by 8.8 pounds. The spleen was not enlarged in either of the pernicious anemia cases. During the five and six months since the men have continued to gain in weight and feel perfectly well.

Eppinger's experimental research throws further light on the hemolytic properties of the spleen and his experience confirms the importance of the urobilin content of the stools as an index of the destruction of red corpuscles going on. The findings in some cases of valvular disease and cardiac insufficiency indicate that destruction of red corpuscles is an important factor in the syndrome presented here, as also in the syndrome of cirrhosis of the liver. Congestion and stasis of the blood favor destruction of the reds, and this is particularly evident with cirrhosis of the liver. The accompanying enlargement of the spleen incriminates the latter as the organ mainly involved in the hemolysis, and the improvement in his cases after splenectomy confirms this. Most of the patients in this liver group had been sent to the hospital with the diagnosis of gall-stone colic but the biliary passages were found normal. Congestion in the liver or spleen or both was probably responsible for the paroxysms of pain in these cases. Eppinger adds a warning that with an apparently harmless catarrhal jaundice connected with some gastro-intestinal intoxication, the spleen may become enlarged and the temperature may rise, but contrary to ordinary catarrhal jaundice, the stools are not clay-colored. There are large proportions of urobilin and urobilinogen in the urine, and the patients are liable to succumb suddenly with symptoms of acute yellow atrophy. He has recently lost two patients under these circumstances. In a more recent case the trouble had lasted for two months with headache and vomiting along with the jaundice. Two days after splenectomy the urine was free from urobilin, the jaundice promptly subsided, and the patient seemed restored to complete health. (See abstract 161 below.)

Deutsches Archiv für klinische Medizin, Leipsic

CXI, Nos. 3-4, pp. 209-416. Last indexed August 9, p. 440

88 Disease of the Auriculo-Ventricular Bundle. (Zwei Fälle von Reizleitungsstörungen.) E. Grabs.
89 Experiments on Kidney Fatigue. (Experimentelle Untersuchungen über die Ermüdbarkeit der Niere.) H. Mosenthal and C. Schlayer.
90 Multiple Symmetric Affections of the Tendon Sheaths and Bursae. (Ueber multiple symmetrische Erkrankungen der Sehnenscheiden und Schleimbeutel bes. die Hygromatosis rheumatica.) H. Günther.

91 Interdependence of the Ductless Glands in Disease. (Beiträge zur Diagnostik und Pathologie des polyglandulären Systems.) K. Csepai.
92 A Case of Polycythemia Rubra. C. Moewes.
93 Hypertrophy of the Heart. E. Edens.
94 Effect of Nitrites on the Coronary Vessels. (Ueber die Wirkung der Nitrite auf die Durchblutung des Herzens. Versuche am Herzen *in situ*.) K. Schloss.
95 Nitrogen Metabolism in Diabetes. (Ueber den Stoff- und Energie-Umsatz bei Diabetes.) F. G. Benedict and E. P. Joslin (Boston).
96 *Minimum Albumin Requirement. (Studien über Eiweissminimum.) M. Hindhede.

96. **Minimum Requirement of Albumin.**—Hindhede has been experimenting for seventeen years with a diet poor in nitrogen. He lived for a month on a diet of new potatoes, butter and strawberries. His children have grown up on a diet low in albumin, and are in the best of condition physically and mentally. He gives tables showing in detail the results of his experiments. Both he and a laboratory assistant lived for long periods on potatoes and oleomargarin, with a daily nitrogen excretion of 5 gm. He found that a nitrogen balance could be maintained on 20 gm. of digestible albumin to 3,000 calories. He agrees with Chittenden's well known low estimate as to the nitrogen requirement. He mentions Kumagawa's conclusion that the lower classes in Japan who live chiefly on rice are stronger than the upper classes who eat meat.

Deutsche medizinische Wochenschrift, Berlin

August 21, XXXIX, No. 34, pp. 1625-1664

97 Rachitis Not of Alimentary Origin. (Weitere Beiträge zur Rachitisfrage.) M. Kassowitz.
98 Physiology and Pathology of the Thymus. G. Meinhold.
99 Passage of Stains through the Intestines after Subcutaneous Injection. (Ueber den Transport subkutan injizierter Farbstofflösungen durch den Darmkanal.) W. v. Möllendorff.
100 Primary and Isolated Actinomycosis of the Salivary Glands. G. Söderlund.
101 Technic for Determining Sugar Content of Small Amounts of Blood. (Eine Methode zur Bestimmung des Zuckergehaltes in kleinen Blutmengen.) A. Kowarsky.
102 Research on Nature of Wassermann Reaction. (Die Eigenhemmung der Sera, ein Symptom der Lues.) J. Trinchese.
103 Traumatic Separation of the Epiphysis in Youths. (Die Epiphysitis tibiae dissecans traumatica adolescentium.) H. Ebbinghaus.
104 Technic for Paraffin Injections. (Zur Beseitigung der Embogefahr bei Paraffininjectionen.) E. Hartung.
105 Phenol and Camphor in Treatment of Venereal Ulcer. K. Rühl.
106 Necessity for Education of the Public in Regard to the Value of Diphtheria Antitoxin. E. Martini.

Deutsche Zeitschrift für Chirurgie, Leipsic

July, CXXIII, Nos. 3-4, pp. 221-416

107 *Injury of the Crucial Ligaments in the Knee-Joint. (Verletzungen der Ligamenta cruciata des Kniegelenks.) H. Goetjes.
108 Isolated Acute Osteomyelitis of the Pubis; Three Cases. Thomschke.
109 First Case of Successful Resection of Thoracic Esophagus for Cancer. F. Torek (New York).
110 Surgery of the Sternum; Four Cases. H. Harttung.
111 Diagnostic Importance of Determination of the Viscosity of the Blood in Surgical Work. D. Frischberg.
112 Combination Conservative Treatment of Surgical Tuberculosis. E. Menne.
113 *Essential Fragility of the Bones. (Zur Pathologie der idiopathischen Osteopsathyrose.) D. G. Zesas.
114 *Rational Pneumopexy in Surgery of the Thorax. G. Lerda.

107. **Injury of the Crucial Ligaments in the Knee-Joint.**—Goetjes adds seven cases to the twenty-three he has found on record and devotes sixty-nine pages to discussion of the conditions and operative repair when the crucial ligaments are ruptured or crushed. He refers to Robson's work in this line mentioned in THE JOURNAL, 1903, xl, p. 1539.

113. **Essential Fragility of the Bones.**—Zesas reports a case of idiopathic osteopsathyrosis in a woman of 57, constantly healthy until the last four years, when she noticed that her arms were weak and tired very easily. The shoulder and arm muscles were atrophied and one humerus and both ulnas showed signs of old fracture. The patient had no knowledge of the fractures but remembered a period two years before when she had had supposed rheumatic pains in her forearms. She died suddenly with symptoms of cerebral hemorrhage, but there was no necropsy.

114. **Rational Pneumopexy in Surgery of the Thorax.**—Lerda gives an illustrated description of the technic with which the lung is fastened to a broad opening in the skin and thus held artificially expanded. All agree that the lung bears suturing remarkably well, and the pneumopexy prevents threatening collapse and shriveling. The incision he recommends for the purpose is along the base of the pleural cavity, cutting but not resecting the ribs. The incision is carried from the sixth interspace, outside the nipple line, to the ninth interspace. The wall of the chest then gapes and affords ample access to the lung, diaphragm and mediastinum. He has had no clinical experience as yet with this technic.

Jahrbuch für Kinderheilkunde, Berlin

August, LXXVIII, No. 2, pp. 125-248

115 Frequency of Acute Inflammations in the Organs with Inherited Syphilis. (Bedeutung akut-entzündlicher Prozesse in den Organen bei kongenitaler Syphilis.) T. Haerle.
116 Effect of Atophan on Uric Acid Output in Children with the Exudative Diathesis. (Ueber Harnsäureausscheidung bei exudativen Kindern und ihre Beeinflussung durch Atophan.) H. Kern.
117 Eczema as an Expression of the Exudative Diathesis in Infants. (Ueber Eczema bei Säuglingen im Anschluss an die Lehre von Diathesen im Kindesalter.) A. Schkarin.
118 *Bad Effects of Carbohydrate Excess in Infant Feeding. (Beitrag zur Kenntnis des Mehlnährschadens.) A. Frank and K. Stolte.
119 *Raynaud's Disease as a Symptom of Inherited Syphilis. A. Bosanyi.
120 Case of Multiple Polypi of the Intestines. (Polyposis intestinalis seu Polyadenomatosis intestinalis.) Z. v. Bokay.
121 Increase of Trabeculae in the Spleen in Rachitis. (Ueber das Verhalten der Gitterfasern in der Rachitismilz.) A. Hayaski.

118. **Effect of Carbohydrate Excess in the Diet.**—Children fed on infant foods containing an excess of carbohydrates may seem well nourished and gain in weight for a long time. Finally, however, there is a loss in weight extending sometimes to extreme atrophy but masked frequently in the terminal stages by edema. Frank and Stolte believe that the harm is due not so much to the excess of carbohydrate as to the lack of other elements found in the normal food of the infant. Nitrogen and mineral salts are found in much greater quantity in milk than in the oat or wheat flours that form the basis of so many infant foods. Tables are given showing the percentages. Lipoids and fat are also lacking, but the fat deficit can be made up to some extent from the carbohydrate. The bodies of infants so fed contain more water than normal, and they are more susceptible to infection. Analyses of the livers from four cases are given, supporting these conclusions.

119. **Raynaud's Disease and Inherited Syphilis.**—Bosanyi describes two cases of congenital syphilis in which Raynaud's disease was present. It disappeared simultaneously with the symptoms of syphilis under luetic treatment, and in one case returned later with a recurrence of the manifestations of the syphilis. He cites similar cases from the literature and draws the conclusion that Raynaud's disease may safely be regarded as one of the manifestations of hereditary syphilis.

Medizinische Klinik, Berlin

August 24, IX, No. 34, pp. 1359-1400

122 *Chronic Juxtapyloric Gastric Ulcer. K. Faber.
123 *The Etiology of Arteriosclerosis and Its Importance for Treatment. M. Herz.
124 Sleep. (Ueber den Schlaf.) S. Laache.
125 Balneotherapy of Circulatory Disturbances. B. Lewinsohn.
126 *Differentiation of Organic and Functional High Blood-Pressure. (Zur Unterscheidung organisch bedingter und funktioneller Hypertonie.) R. Deussing.
127 Present Status of Treatment of Joint Tuberculosis. (Die moderne Behandlung der Gelenktuberkulose, speziell des Hüftgelenks, und ihre Emanzipation von Krankenhaus und Krankenlager.) W. Becker and E. Papendieck. Commenced in No. 33.
128 Seashore Health Resorts. (Veränderte Bewertung des deutschen See- und Küstenklimas.) F. Röchling.
129 Radish Juice in Treatment of Cholelithiasis. H. Engels.
130 Apparatus for Blood-Count. (Die Blutkörperzählung und Prozentbestimmung mit dem Cytax.) v. Putkowski.
131 Cultivation of the Syphilis Spirochete. (Züchtung der Spirochaeta pallida.) S. Szecsi.

122. **Chronic Peptic Ulcer Near the Pylorus.**—A similar article by Faber was summarized in THE JOURNAL, 1913, lx, p. 638. He here brings the history of some of his cases down to date, and emphasizes anew the diagnostic importance of intermittent stenosis of the pylorus. Spasmodic closure of the pylorus, with intervals of complete freedom from stenosis, is a sign of ulcer close to the pylorus, whether on the stomach or duodenum side or encroaching on both. According to his experience the hunger pains coming on not until two hours after eating are not pathognomonic for duodenal or gastric ulcer but may occur with various intestinal affections. He warns not to suggest by one's questions the character of the pains felt by the patient, and he insists on the necessity for objective findings before accepting a peptic ulcer. There must be evidence of gastric hypersecretion, especially 200 c.c. or more of acid stomach content after an Ewald test-breakfast, delay in evacuation of the stomach after the Bourget-Faber retention test-meal, and blood in stomach or stools, visible or occult. With a juxtapyloric peptic ulcer, operative treatment is necessary if a tendency to spasm of the pylorus persists, even in a mild form, after a thorough course of internal treatment of the ulcer. He found that in over 50 per cent. of all his chronic ulcer cases the ulcer was close to the pylorus, and that all disturbances vanished at one stroke after a gastro-enterostomy. The attacks of spasm of the pylorus may be so mild that they do not attract the patient's attention, but certainty can be obtained by the stomach-tube showing much retention at one time and little, if any, at others.

123. **Etiology of Arteriosclerosis.**—The main point which Herz emphasizes is the importance of grief and worry in the origin of arteriosclerosis, and the necessity for the physician's being a true friend of the family and adviser in order to better conditions in this respect. Far too little attention is paid as a rule to the nervous or psychic factors contributing to arteriosclerosis. Physicians are liable to scoff at the idea that one can die of a broken heart, but humanity at large and many general practitioners know that this does occur. Herz has recently had a case of the kind in his practice: A woman whom he knew to be perfectly healthy was actually consumed by grief and died of coronary sclerosis when her daughter went wrong. Women die from grief; men from worry over business. The effect of emotions on the vascular system is most serious when the vessels involved are connected with the brain, heart or kidneys. The physician who does not apply psychotherapy in treatment of arteriosclerosis neglects one of the most effectual means at his command. With cerebral-neurasthenic arteriosclerosis, iodin is the main reliance; with coronary trouble, theobromin and nitrites; but all these are of little if any use when the arteriosclerosis affects the cardiorenal vessels. Dieting is the reliance here.

Herz adds that even if alcohol and tobacco may be factors in the vascular trouble, yet any benefit from dropping them entirely is far outbalanced by the patient's longing for his accustomed stimulant. Everything should be done to make the patient placid, comfortable and cheery. An alcohol rub in the morning before rising is an important aid. If he dreads balneotherapy, do not insist on it or on anything that will annoy or distress him. Herz declares in conclusion that prophylaxis of arteriosclerosis should begin in childhood. Children are generally driven as being naturally lazy and ambitionless, but he insists that this is a mistake. Most people, even children, try to do too much; they work and worry too much. Children should be trained to recognize that they owe a duty to themselves, to seek fun as a recompense for fulfilling their ordinary duties. Joy does not come to us as sorrow does; we have to seek for it, and few understand this. We physicians, for example, are far too much slaves to duty, we overwork and ruin ourselves. (*. . . viel zu sehr Pflichtmenschen, wir überarbeiten und ruiniren uns.*)

126. **Differentiation of Organic and Functional High Blood-Pressure.**—Deussing eliminates all the functional factors possible by taking the blood-pressure in the morning before the patient gets up and while he is still fasting. This not only excludes psychic and physical factors, but it also excludes any possible mechanical influencing of the heart by the full stomach. Organically high blood-pressure is the same under these conditions as ot other times, but a previously functional high blood-pressure will be found practically normal.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

August, XXXVIII, No. 2, pp. 125-246

132 High Straight Position in the Uterus. (Der hohe Geradstand.) O. Pankow.
133 Desirability of Uniform Terminology in Describing Mechanism of Birth. (Kopfform und Geburtsmechanismus.) A. Müller.
134 *Expectant Treatment of Eclampsia. (Weitere Erfahrungen mit der abwartenden Eklampsiebehandlung.) Lichtenstein.
135 *Laparotomy for Abortion and Removal of Tubes. (Schwangerschaftsunterbrechung und Sterilisation in einer Sitzung auf abdominalem Wege.) H. Sellheim.
136 Operative Cure of Immense Basal Spheno-Orbital Meningocele. H. Kondring.
137 Improved Technic for Embedding in Paraffin Histologic Sections of Uterus and Ovaries. F. A. Loofs.
138 Ancient Votive Offerings Depicting Female Genital Organs. (Antike Votivgaben die weiblichen Genitalorgane darstellend.) K. Sudhoff.

134. **Expectant Treatment of Eclampsia.** — Lichtenstein believes that the expectant treatment by bloodletting and narcotics is to be preferred to operative interference in eclampsia. He gives his statistics for ninety-four cases, with the histories in twenty-four of the most severe cases. He had five deaths, a mortality of 5.3 per cent. None of the deaths could be attributed to the form of treatment. The infant mortality was 37.3 per cent. as against 38.8 per cent. for active treatment in previous years. Psychoses occurred in 2.1 per cent. as against 6.75 per cent. for the active treatment. In 54 per cent. of the cases the attacks ceased after a single venesection; 42 per cent. of the women with antepartum attacks recovered before labor came on. Seventy-four successive cases were treated without a death. Naturally, with either method of treatment, the results are the more favorable the earlier it is begun. He recommends the lateral position, as respiration is freer and there is less pressure on the abdominal vessels and ureters than in the dorsal position.

135. **Laparotomy for Interruption of Pregnancy and Sterilization.**—In cases in which it is necessary to interrupt pregnancy and sterilization is indicated, Sellheim opens the abdomen, incises the uterine wall, empties the uterus, closes the uterine wound and excises the tubes. He has operated in ten cases in this way and believes it is more favorable to the patient than emptying the uterus by the vaginal route and performing a salpingectomy afterward, as the latter method involves two anesthetizations.

Monatsschrift für Kinderheilkunde, Berlin

August, XII, No. 4, pp. 151-228

139 Unmodified Cow's Milk Preferable to Casein-Enriched Milk. (Vergleichende Untersuchungen über die Ausnützung von Vollmilch und kaseinfettangereicherter Kuhmilch.) A. Frank.
140 *Development of Artificially Fed Infants. (Ueber die Entwicklung junger Säuglinge bei künstlicher Ernährung.) P. Phillippson.
141 Case of Pentosuria in Early Childhood. H. Aron.
142 *Optimum Dosage of Calcium Salts in Spasmophilia. (Untersuchungen über die therapeutisch wirksame Dosierung von Kalksalzen mit bes. Berücksichtigung der Spasmophilie.) K. Blühdorn.
143 *Pulmonary Tuberculosis in Infants. (Zur Klinik und Pathologie der Lungentuberkulose beim Säugling.) R. Lederer.
144 Fat Content of the Liver in Atrophic Infants and in Inanition. A. Hayashi.

September, No. 5, pp. 229-268

145 *Calcium Lactate in the Digestive Disorders of Infancy. (Die Anwendung von Calcium lacticum bei Ernährungsstörungen von Säuglingen.) E. Aschenheim.
146 *Surgical Scarlet Fever. (Zur Klinik des Wundscharlachs.) H. Hahn.
147 Whey in Infant Feeding. (Erfahrungen mit Molkensuppe bei Säuglingen.) F. Steinitz and R. Weigert.
148 *Bronchotetany, Asthma and Asthmatic Bronchitis in Infancy. H. Rietschel.

140. **Development of Artificially Fed Infants.**—Phillippson gives the weight curves of twenty-three infants fed artificially for periods of more than two weeks during 1912. With the exception of two who have died, all the children made satis-

factory gains in weight and none suffered from severe rickets. As compared with breast-fed infants, however, the curves do not show as great gains. They were fed on a simple dilution of sweetened cow's milk. In some cases beet sugar was used and in others Soxhlet's sugar with no appreciable difference in results. Phillippson prefers this simple nourishment to albumin-milk, malt, buttermilk, or any of the more complicated formulas frequently used.

142. **Dosage of Calcium Salts in Spasmophilia.**—Blühdorn here brings down to date the report of his experiences with calcium chlorid, previously summarized in THE JOURNAL, July 19, 1913, p. 228. He has applied this treatment now in twenty-six cases. The little patients were all between 4 and 12 months old except one of 2 years and one of 4½. The last mentioned child had repeated attacks of spasm of the glottis and they did not return after ten tablespoonfuls of the 10 per cent. solution had been taken within twenty-four hours. The dosage advocated was decided on after study of the effect of tentative dosage on the electric irritability of the median nerve tested between 9 and 10 a. m. and 6 and 7 p. m. He reiterates that large doses are necessary the first day, 2 or 3 gm. of the chlorid or bromid at a dose, up to 4 or 8 gm. in the course of twenty-four hours. This will stop convulsions and other symptoms of the spasmophilia but does not have much effect on the electric excitability of the muscles. The same dosage, he states, should be given where calcium salts are used in other diseases, such as constitutional eczema, asthma or tendency to hemorrhage. The effect is soon manifest with this dosage but it disappears quickly. It is really a symptomatic improvement which ceases as soon as the medication is discontinued. No change in diet need be made. The comparative efficacy of the various salts depends partly on their calcium content and partly on the ease with which they are absorbed.

143. **Pulmonary Tuberculosis in Infants.**—Lederer describes five fatal cases of pulmonary tuberculosis in infants and three in which the children recovered. In all the fatal cases there was miliary tuberculosis of various internal organs. He believes that the infection was of air-borne origin, the primary focus being in the lung with involvement of neighboring lymph-nodes. The prognosis in early infancy is extremely unfavorable, but he gives the three cases of recovery to show that it is not hopeless. The difference in the outcome is due partly to the severity of the infection, partly to the environment of the child as to light, air, food, etc., and partly to predisposition, as he believes that there is such a thing as congenital tuberculosis.

145. **Calcium Lactate in Digestive Disorders of Infancy.**—Aschenheim is convinced that the use of the so-called albumin-milk is a tremendous advance in infant feeding. It is, however, difficult to make and expensive, and he has been looking for a cheaper substitute. In many cases of mild or moderate dyspepsia he has found calcium lactate answer much the same purpose. He feeds a mixture of milk and water or milk and oatmeal and water, enriched on the second day with a little cream. In severe cases no sugar is used; in milder cases Soxhlet's sugar. In addition he gives from 7 to 10 gm. calcium lactate per day, that is, 70 to 100 c.c. of a 10 per cent. solution. He regards calcium lactate as a valuable aid in the management of dyspeptic conditions in infants, basing his conclusions on its results in sixty-one cases.

146. **Surgical Scarlet Fever.**—Hahn gives histories of seventeen cases of scarlet fever occurring in his surgical clinic after wounds or operations. The most of them followed burns or operations for empyema. The eruption began in most cases around the wound and the typical picture of scarlet fever then developed. It was, however, milder than ordinary scarlet fever. In only one case was there any ear affection or swelling of the lymph-nodes. There was no nephritis or heart affection in any case. He attributes this to the fact that the infection was probably with an attenuated virus.

148. **Bronchotetany.**—Lederer described in the *Ztschr. f. Kinderhilk.*, 1913, vii, 1 (abstract in THE JOURNAL, 1913, lx, 1931), a condition which he called bronchotetany. The most characteristic feature of it is the extreme dyspnea caused by spasm of the bronchial musculature, preventing the access of air. He gave the differential diagnosis from pneumonia and asthma and described six cases.

Rietschel here reports a case of almost a month's duration, ending in recovery. He thinks the differential diagnosis from true asthma is more difficult than would appear from Lederer's article, and emphasizes the importance of making the distinction, as the treatment for spasmophilia is of a different nature and far more hopeful than that for true asthma.

Münchener medizinische Wochenschrift

August 26, LX, No. 34, pp. 1865-1920

149 *The Pancreas Secretion during Disturbance in Stomach Secretion. (Studien über die Pankreassekretion bei Sekretionsstörungen des Magens.) E. Schlagintweit and W. Stepp.
150 Diphtheria Antitoxin by Intravenous Injection. (Intravenöse Anwendung des Diphtherie-Heilserums.) W. Beyer.
151 *Biology of the Syphilis Spirochete. (Beobachtungen an lebenden Spirochäten.) E. Meirowsky.
152 Antitryptic Action of the Blood Serum. H. Kämmerer.
153 *Treatment of Lymphosarcoma. E. Fabian.
154 Frequent Deformity in Lower Thoracic Vertebrae. (Häufige Anomalie der unteren Brustwirbelsäule.) W. Gundermann.
155 No Antilactose Ferments in the Serum of Pregnant Women. (Ueber Abwehrfermente im Blutserum Schwangerer und Wöchnerinnen, die auf Milchzucker eingestellt sind.) E. Abderhalden and A. Fodor.
156 *The Testimony of Persons Injured in Accidents. (Zur Psychologie der Aussagen Unfallverletzter.) R. Foerster.
157 Blocking the Brachial Plexus in Treatment of Neuralgia. (Beeinflussung der Neuralgie des Plexus brachialis durch Kuhlenkampfsche Anästhesie.) M. Többen.
158 Technic for Determination of Diphtheria Bacilli. (Ueber das Nachweisverfahren der Diphtheriebazillen nach v. Drigalski und Bierast.) E. Voelckel.

149. **Pancreas Secretion Dependent on Stomach Secretion.**—The experiments were made on a large dog whose gall-bladder had been connected with the small intestine after severing the common bile duct. A tube was worn in the duodenum through which gastric juice was injected. Injection of a small amount of normal or hyperacid gastric juice was followed by profuse secretion of pancreatic juice. On the other hand, injection of the stomach secretion from patients with gastric cancer or simple achylia was followed by little if any secretion in the pancreas. The latter is evidently the result of several factors. When the most important factor—the chemical stimulus from the hydrochloric acid—drops out, the inadequacy of the remaining factors is liable to lead soon to severe impairment of pancreas functioning.

151. **Vital Staining of Spirochetes.**—Meirowsky describes the stain with which he has been able to color living spirochetes without apparently impairing their vitality. He was surprised to find with this technic that the *Spirocheta pallida* sprouts one or more buds and that new spirochetes spring from these buds. The buds can be seen dividing like the nucleus of a true cell into two, four or more parts, and the young spirochetes develop from these fragments, regardless of whether the buds are still connected with the body of the mother spirochete or whether they have been detached from it. If further research shows that the spirochete belongs to the protozoa, the propagation is here of an asexual type. There is of course a possibility that the spirochete may prove to be a plant structure which proliferates by production of spores. The budding has interesting features as he shows with an illustration of over seventy-four different types. The vital staining seems to be possible with any methyl violet. The budding is visible also in the ultramicroscope and with the spirochetes of balanitis and stomatitis.

153. **Lymphosarcoma.**—Fabian presents evidence from his own experience and from the literature that a lymphosarcoma limited to its site and the regional lymph-nodes may sometimes be cured by a radical operation. Occasionally an inoperable or generalized lymphosarcoma may become arrested and even retrogress, passing into a latent stage, but to date no instance is known of an actual complete cure. These retrogressions have followed an intercurrent infectious disease, partial operations, radiotherapy or injection of Coley's fluid; they

have thus been observed after the most varied measures or without any medical measures. Fabian reports two cases: In the first an inoperable lymphosarcoma of the jaw and cheek retrogressed under arsenic and the Roentgen rays, and examination thirteen months after the course of treatment showed that the retrogression then realized had been permanent, nothing being left of the growth, only extreme atrophy of the tissues in its place. The patient, a woman of 56, had gained 10 pounds in weight. In the second case a robust man of 65 had the lymphosarcoma develop on the nose in a few weeks. The growth was excised and there has been no sign of recurrence during the two years and three months since, although the depths of the tumor had not been reached. Such cases teach the necessity for prompt and energetic treatment as giving some hope, although the prognosis should always be extremely guarded.

156. **Psychology of the Testimony of Persons Injured in Accidents.**—Foerster declares that the testimony of persons who have passed through an accident is liable to be incorrect and misleading even at the best. At the moment of the injury, and on account of the injury their perception of what is going on may be impaired. What was noticed may be forgotten later, while the gaps in the memory are filled up by vague memories of what occurred, by reasoning backward from the injuries observed, by unconscious assimilation of the descriptions of other persons, and by analogous experiences in other circumstances. In the elderly and those with clouded minds, the actual occurrences may be incorrectly interpreted. The fright alters the conception of time; when there is pain, the interval seems longer; or the fright may obliterate the interval between the events.

Petersburger medizinische Zeitschrift

August 28, XXXVIII, No. 16, pp. 189-204

159 Fracture of the Knee. O. Brehm.
160 The Refractometer in Physiologic-Chemical Research. (Anwendung des Abbeschen Refraktometers bei chemisch-physiologischen Untersuchungen.) S. Serkowski and W. Kraszewski.

Therapie der Gegenwart, Berlin

September, LIV, No. 9, pp. 385-432

161 *Splenectomy in Treatment of Pernicious Anemia. G. Klemperer and H. Hirschfeld.
162 *Local Application of Tincture of Iodin to Eradicate Diphtheria Bacilli. (Systematische Jodpinselung des Rachens zur Beseitigung von Diphtheriebacillen.) F. W. Strauch.
163 Refrain from Endonasal Operations Unless Strictly Necessary. B. Goldschmidt.

161. **Splenectomy in Treatment of Pernicious Anemia.**—Klemperer and Hirschfeld report two cases of pernicious anemia in which they removed the spleen and marked improvement followed. This brings to six the total number of cases on record in which splenectomy has been done in treatment of pernicious anemia. They based the procedure on the fact that a previous patient with Banti's disease, severe anemia with splenomegaly, developed pronounced polycythemia in a year and a half after splenectomy. The reds then numbered seven and eight millions with hemoglobin over 120 per cent. There are also a number of other cases on record in which polycythemia followed splenectomy done for rupture of the spleen. Eppinger's report of two cases is summarized above, abstract 86. He removed the spleen on the ground that in hemolytic anemia there seems to be a pathologic excessive destruction of the reds in the spleen. As splenectomy has given good results in hemolytic jaundice, he applied the same measure in pernicious anemia and his results were much more favorable than those reported in the present article.

It is possible that the splenectomy acts better when the pernicious anemia is of recent date. In the two cases here reported the blood picture changed at once showing an essential influence on the regeneration of the bone marrow. No such powerful reaction on the part of the bone marrow has ever been obtained by any other measure applied in treatment of pernicious anemia. The hope that the splenectomy would stimulate the new production of red blood corpuscles was fully realized, although the blood still has certain features of pernicious anemia, especially the presence of numerous megalocytes. The most interesting point in the case-histories is the immediate flooding of the blood after the splenectomy with nucleated reds, a blood crisis of an intensity never observed before. Time alone will show whether the benefit is durable. The greatest improvement both subjectively and objectively was in the case of a tuberculous woman of 36; the hemoglobin content rose from 30 to 55 per cent. in one month and to 80 per cent. by the second month.

162. **Iodin in Prophylaxis of Diphtheria.**—Strauch applies as a routine measure tincture of iodin to paint the tonsils when diphtheria bacilli are still found in the throat a week after the close of an attack of diphtheria. In sixteen out of fifty cases after one or two applications of the iodin on a cotton pledget no further diphtheria bacilli could be detected; in twenty others none could be found after three applications; in two cases four applications were necessary, and in four other cases, including three with diphtheria of both nose and throat, the bacilli could still be cultivated from the tonsils. He commends this systematic iodin treatment as a useful means to control the further spread of the infection, even though it is not invariably successful. The most striking results were observed in some cases in which chronic bacilli carriers were freed from the bacilli in a few days under the iodin. No harm or by-effects were ever noticed, except the disagreeable but transient taste of the iodin in the mouth.

Wiener klinische Wochenschrift, Vienna

August 21, XXVI, No. 34, pp. 1353-1380

164 *Changes in Syphilis Virus. (Aktivitätsveränderungen und entsprechende Aviditätsschwankungen des luetischen Virus gegenüber antisyphilitischen Mitteln.) W. Buettner.
165 Serodiagnosis of Cancer, Nephritis, etc. (Serologische Untersuchungen mittels des Dialysierverfahrens nach Abderhalden.) F. Deutsch and R. Köhler.

August 28, No. 35, pp. 1381-1412

166 *Acute Necrosis of the Pancreas. J. Gobiet.
167 *Prophylaxis of Diphtheria. (Zur Frage der rationellen Erweiterung unserer heutigen Diphtheriebekämpfung.) K. Delyannis.
168 Roentgenoscopy of the Pericardium. (Zum radiologischen Verhalten des Perikards.) E. v. Czyhlarz.
169 Suppuration in Undulant (Malta) Fever Simulating Pott's Disease. (Zwei Fälle von Eiterung bei Maltafieber, welche Senkungsabszesse im Gefolge von Malum Potti vortäuschten.) G. Trotta.
170 *Dietetic Treatment of Urticaria. H. Salomon.

164. **Fluctuations in Receptivity of the Syphilis Spirochetes.**—Buettner concludes from his extensive research that the activity of the spirochetes and the avidity with which they take up the drugs used in treatment of the syphilis run a parallel course. In the early stages the spirochetes are most active and at the same time most susceptible to drugs. Among the arguments in favor of this view are that drugs are most effectual in the florid stage; also the fact that mild syphilis cannot be cured with correspondingly mild measures, while general paresis is liable to follow the mild early forms; also that the drugs are more effectual in the early than in the later stages; that the cure is not proportional to the amount of the drugs used, and, lastly, the fact that certain germs in other diseases display this same propensity to become less susceptible to drugs in time. Among other conclusions drawn from this research is the necessity for arousing the avidity, stimulating the appetite, of the spirochetes for the drugs. He suggests for this giving small doses of mercury for a few days to activate the virus before commencing the actual therapeutic course. Or one small dose of salvarsan might be given first, before the intravenous therapeutic dose. Activating measures in the form of sweating procedures, iodid, thiosinamin, etc., have long been advocated by some, and he thinks they are logical. He is inclined to regard the Herxheimer reaction as merely the result of activation of the virus.

166. **Acute Necrosis of the Pancreas.**—Gobiet reports seven cases in less than three years in which he has operated on the diagnosis of acute necrosis of the pancreas. Four of the patients had gall-stones and one inflammation of the gall-bladder without stones. Five of the patients were inclined to

obesity, but in the two most severe cases the patients were quite thin. In only one case could syphilis be incriminated. The clinical picture is that of sudden and violent intoxication, in the severest cases speedily fatal. The prognosis depends on the amount of toxins produced which in turn depends on the local extent of the process. The diagnosis is based on the symptoms of toxic action accompanied with severe shock and peculiar pains in the epigastrium, more intense than gallstone colic, and the frequent distention of the transverse colon. Operation without delay is imperative—incising and tamponing the pancreas. Even if the biliary passages are diseased, it is not necessary to open and drain them unless there is severe suppuration. Only in mild cases of necrosis of the pancreas is it advisable to operate on the biliary apparatus at the same time. As a rule, it is better to remove the gallstones at a second operation, to prevent return of the pancreas affection.

167. **Prophylaxis of Diphtheria.**—Delyannis expatiates on the necessity for searching out and isolating the carriers of diphtheria bacilli as the only means to stamp out epidemics. He gives a number of concrete examples to show the small numbers of diphtheria-bacilli carriers and the comparatively short periods during which they require isolation. This renders prophylaxis along these lines comparatively simple and easy. He cites Wolff's experience with endemic diphtheria in two villages, affecting 20 per cent. of the total population and resisting all attempts to stamp out the disease until the bacilli carriers were sought out and isolated when at one stroke the epidemic was conquered and no further cases developed, although all other prophylactic measures were dropped. Delyannis thinks that the same system of prophylaxis should be enforced for diphtheria as for typhoid.

170. **Dietetic Treatment of Urticaria.**—Salomon writes from von Noorden's clinic at Vienna, to call attention to the striking results he has obtained in treatment of rebellious urticaria by having the patients drop all albumin from their diet for two weeks. In his experience the urticaria did not return after this dietetic restriction for two weeks, although the patients afterward gradually resumed milk, eggs, cheese and meat, still keeping the albumin ration, however, rather below the usual amount. The diet he permitted consisted only of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals and plenty of butter and sugar, and about 200 gm. of bread made of coarse flour.

Zentralblatt für Chirurgie, Leipsic

August 30, XL, No. 35, pp. 1361-1392

171 Technic for Local Anesthesia. (Zur Frage der Lokalanästhesie mit Novokain-Suprarenin-Kaliumsulfat.) A. Hoffmann.
172 Frost Bite without Freezing Weather. (Ueber Frostschaden ohne Frostwetter.) A. Köhler.
173 Exclusion of the Appendix. (Ausschaltung des Wurmfortsatzes.) E. Sonnenburg.

Zentralblatt für Gynäkologie, Leipsic

August 30, XXXVII, No. 35, pp. 1285-1316

174 Institutional Care for Obstetric Cases. (Die Vereinigung zur Förderung der Wöchnerinnenasyle und ihrer sozialhygienischen Bestrebungen.) Brennecke.
175 Advantages of Seizing the Fetal Head as One Grasps a Ball in a Bowling Alley. (Ueber den Kegelkugelhandgriff.) Schwarzwäller.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 26, XXXIV, No. 102, pp. 1063-1070

176 Advantages of Salt-Poor Diet in Diabetes Insipidus. E. Boari.

August 28, No. 103, pp. 1071-1078

177 Superiority of Guignaut's Test for Bile Pigments in Stools. (Sull' applicazione dell'acido cloridrico con percloruro di ferro per la ricerca delle biline e dei pigmenti biliari nelle fecce.) G. Jovine.

Policlinico, Rome

August 31, XX, No. 35, pp. 1249-1284

178 Serodiagnosis in Exophthalmic Goiter. (Ricerche sulla deviazione del complemento nel morbo di Flajani-Basedow.) I. G. Rosco.
179 Iodin Treatment of Erysipelas. (Sulla cura locale della erisipela con la soluzione alcoolica di tintura di iodio.) F. Parisi.

Riforma Medica, Naples

August 16, XXIX, No. 33, pp. 897-924

180 *Cancer of the Testicle. D. Maragliano. Concluded in No. 34.
181 *Technic for Resection of Colon. (Mobilizzazione basale del meso-colon pelvico per ristabilire la diretta continuita intestinale nelle resezzioni del colon iliaco e porzione terminale del colon discendente.) G. Vignolo.
182 *Thermocautery to Precede Filling of Bone Cavities. (Su la cauterizzazione di una perdita di sostanza ossea preguidichi l'impiombatura.) L. Fioravanti.
183 *Traumatic Suppuration in Liver of Small Boy. (Ascesso traumatico del fegato.) F. D'Agostino.

August 23, No. 34, pp. 925-952

184 Apparatus for Therapeutic Pneumothorax. (Un nuovo apparecchio pel pneumotorace artificiale.) G. Breccia.
185 Marmorek's Serum in Surgical Tuberculosis. C. Paveslo. Commenced in No. 33.

180. **Cancer of the Testicle.**—Maragliano urges the importance of removing the lymph-nodes along the abdominal aorta, as they connect directly with those linked with the testicle, as an important aid in warding off recurrence. He reports a case.

181. **Mobilization of the Pelvic Mesocolon as Aid in Entero-Anastomosis.**—Vignolo calls attention to the advantages of the technic he applied in a recent case and studied further on the cadaver. In resecting a cancer in the colon near the sigmoid flexure, a wide gap was left between the stumps and they could not be brought together until he cut across part of the mesentery of the lower stump at its base. This freed the lower stump so that it could be brought up easily and joined with the other. In two weeks the bowels were functioning practically normally and recovery was soon complete.

182. **The Thermo-Cautery Before Plugging Cavities in Bones.**—Fioravanti reports only two cases but the results were so unmistakably excellent, as also on rabbits and dogs, that he advises as a routine measure the use of the actual cautery as a preliminary to Mosetig's filling. It aids in hemostasis while it dries out the cavity and helps to sterilize it.

183. **Traumatic Abscess in the Liver.**—D'Agostini's patient was a boy of nearly 6, who complained of pain in the right side at the point where he had been punched in the side by one of his mates eight days before. He kept on at school for ten days when chills and remittent fever developed and a small tender bunch could be palpated in the side, gradually increasing to the size of an orange. There was no jaundice nor diarrhea nor vomiting. The large fluctuating tumor was opened under ether and smooth recovery followed. The pus had the odor characteristic of colon-bacillus pus. D'Agostini was able to find in the literature only one other case of traumatic liver abscess; this was in a robust man who slept in an iron-framed cot, the hard edge of which traumatized his right side.

Medizinskoe Obozrienie, Moscow

LXXIX, No. 10, pp. 815-902

186 *Diagnosis of Gaseous Subphrenic Abscess. S. A. Grossman.
187 Changes in the Liver in a Case of Splenomegaly. (Ob izmieneniak petcheni v odnom slutchaie splenomegalii.) A. Kriukov.
188 Occupational Diseases; Four Cases of Industrial Carbon Bisulphid Poisoning of the Nervous System. (O gruppovom otravlenie nervnoi systemi sierouglerodom.) V. K. Xorosko.
189 Antibodies in the Serum during the First Stage of Syphilis. (Nakopleni spetchifitscheskik protivotiel v sivorotkie bolnik v pervitchnom periodie.) A. V. Likatchev.
190 Multiple Neurofibromata in Two Adult Brothers. (Bolieani Recklinghausen'a.) N. N. Pismenni.

186. **Differential Diagnosis of Gaseous Subphrenic Abscess.**—Grossman gives four colored plates to map out the region and aid in the differentiation of suppuration below the diaphragm. His patients were a man of 36 and two young women. One woman recovered but the other patients died from heart failure or general weakness a few weeks after the evacuation of the abscess.

Hospitalstidende, Copenhagen

August 27, LVI, No. 35, pp. 1005-1028

191 Carbon Dioxid Snow in Treatment of Skin Diseases. (Om Behandling af Hudsygdomme med Kulsyresne.) P. Haslund.

Ugeskrift for Læger, Copenhagen

August 28, LXXV, No. 35, pp. 1435-1456

192 Hysteria. (Hysteri før og nu.) S. Heyerdahl. Commenced in No. 34.